

# Natura Impact Statement for proposed Strategic Housing Development (SHD) Phase 5 Lands at Oldtown, Co. Dublin

Compiled by OPENFIELD Ecological Services

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For Gannon Properties



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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 significant effects to the integrity of the Natura 2000 network are likely to occur as a result of granting planning permission in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Acts. It will determine whether mitigation measures are required to ensure that negative effects can be avoided to the Natura 2000 network.

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

Under the European Communities (Birds and Natural Habitats Regulations) 2011 an NIS:

*...means a report comprising the scientific examination of a plan or project and the relevant European Site or European Sites, to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment.*

It should be noted that under Article 42(1) of the aforementioned legislation it is the relevant competent authority, in this case An Bord Pleanála, which carries out any AA or screening for AA, stating:

A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.

This NIS therefore aids in the decision-making process.

**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 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). Chapter 3, part 1, of this document deals specifically with screening while 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 as defined by the conservation objectives and status 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.

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)**

This application is for the construction and operation of residential housing units and all associated services and infrastructural works. It is described thus, as per the planning application:

*A proposed Strategic Housing Development consisting of the removal of the temporary site office/site compound structures on site and the construction of 377 no. residential units comprising of duplexes, apartments and houses, all with associated car parking; a childcare facility with associated car parking; landscaping including play equipment; boundary treatments; public lighting; and all associated engineering and site works necessary to facilitate the development including proposed vehicular accesses onto Miller's Avenue, and a proposed stormwater storage tank (with proposed vehicular/service access onto Balheary Road) and overflow outfall gravity sewer to the Broadmeadow River with associated manholes on lands locally known as the Celestica/Motorola site, junction of Glen Ellan Road and Balheary Road, and at/on Balheary Road.*

The construction phase will involve the use of standard construction materials. Treelines and drainage ditches are to be preserved.

Surface water will pass to the Broadmeadow River via an existing drainage network for this site. This comprises an open pond attenuation area and conforms with the Greater Dublin Strategic Drainage Study (GDSDS). Outfall from the site will be controlled by a hydrobrake flow control mechanism. The headwall and outfall to the Broadmeadow have already been constructed. SUDS are standard measures in all development projects and are not included here to reduce or avoid any effect to a Natura 2000 site.

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 11,391 P.E. The AER states that capacity will not be exceeded within the next three years.

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 areas. The proposed site layout is shown in figure 3.

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 sewer 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 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/Ward River."

The proposed development will eliminate a source of ongoing and uncontrolled pollution from the River Ward. Instead, stormwater will be diverted into the tank and any overflows from the tank will discharge to the Broadmeadow. 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 uncontrolled 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:

### Habitat loss

The site is approximately 3km 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 pathway for loss or disturbance of habitats listed as qualifying interests of Natura 2000 sites, 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 Natura 2000 sites are likely to arise from this aspect of the development.

### Habitat disturbance

No habitats will be disturbed within or directly connected to Natura 2000 sites. This development is will not significantly increase recreational pressure on Malahide Estuary or any other Natura 2000 site as it lies a significant distance 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 may be associated with Natura 2000 sites at Malahide Estuary or Baldoyle Estuary. There are no habitats for such species on the development site.

No significant effects to Natura 2000 sites are likely to arise from this aspect of the development.

### Pollution during construction

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 Saucerstown Stream and the Broadmeadow River, including for the proposed surface water overflow from the tank on the Balheary Road, and using a precautionary approach, the potential for large quantities of silt to be washed downstream means that significant effects to the Malahide Estuary SAC and SPA cannot be ruled out.

### Pollution during normal operation

- 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 179,734.5l/day. The 2020 AER states that there is capacity of 11,391 P.E and that capacity will not be exceeded within the next three years. The most recent AER for this plant has indicated that it is having no observable impact on the WFD status of the receiving waters.

- exceptional overflow events

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

- 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.

This development can have no significant effect upon Natura 2000 sites in the Malahide Estuary.

No significant effects can occur to any Natura 2000 site arising from this source.

### Abstraction

There is no pathway between the development site, and the sources of abstraction along the River Liffey, to any Natura 2000 site.

No negative effects to Natura 2000 sites are likely to arise from this aspect of the development.

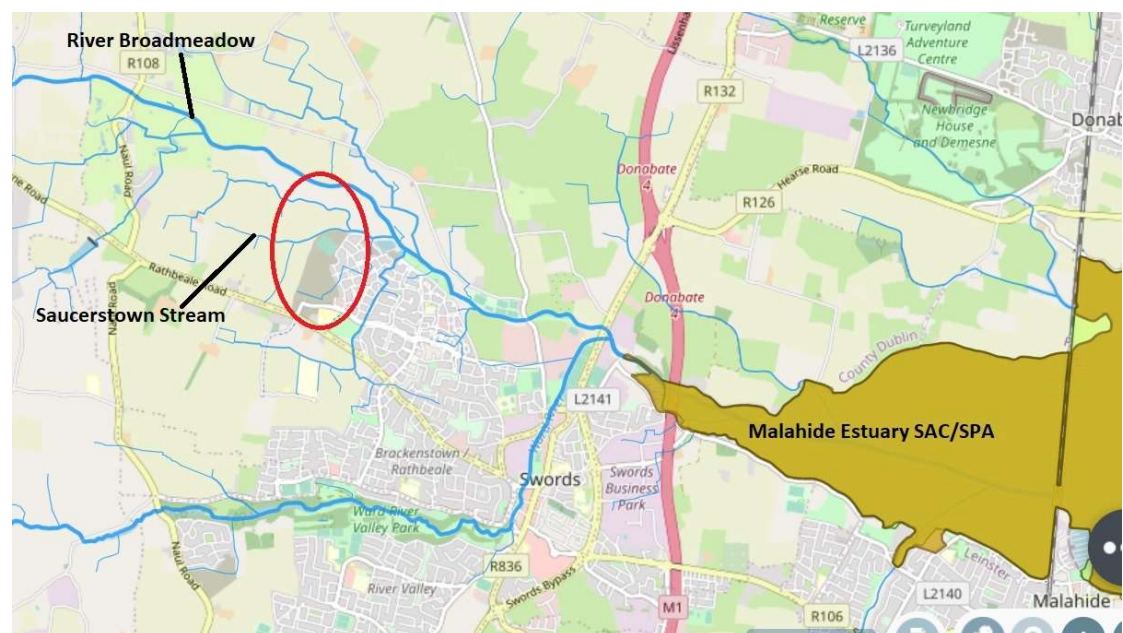


Figure 1 – Site location (red circle) showing the proximity to the Malahide Estuary SAC/SPA (from [www.epa.ie](http://www.epa.ie)).

**In combination effects**

Implementation of the WFD 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 development 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.

The Oldtown lands are zoned RA (new residential communities subject to the provision of the necessary social and physical infrastructure) under the Fingal County Development Plan 2017-2023 and were subject to the Oldtown-Mooretown Local Area Plan 2010 before it expired in July 2020. The primary objectives of the LAP are recognised and considered in the preparation and detailed design of this planning application.

There are a number of extant primary or 'parent' planning permissions for the Oldtown lands, summarised in Table 17.

A combined total of 967 dwellings, 5 crèches and 1537sqm of retail uses have been granted planning permission. Of these, 647 dwellings are complete and 207 dwellings are under construction.

New housing developments in this vicinity, including at Oldtown, Holybanks and Mooretown will increase the loading to the Swords wastewater treatment plant. According to the AER for this plant from 2020 (the most recent available), it has a design capacity of 90,000 P.E. In 2020 the actual loading (peak week) was 59,109 P.E. leaving an available capacity of 11,391. The AER stated that the treatment capacity at the plant was not likely be exceeded 'within the next three years', i.e. by 2023. There is sufficient capacity at the Swords WWTP to treat the effluent from the proposed development to a high standard.

This land is highlighted as a Masterplan area under the Fingal County Development Plan 2017-2023. This Plan was subject to AA by the Local Authority which concluded that adverse impacts to the integrity of the Natura 2000 network would not occur.

The proposed development is Phase 5 of a wider scheme that has been underway since 2013. Each of the previous permitted phases, which have been completed or which are underway, have been accompanied by Screening for Appropriate Assessment.



Table 17 – Summary table of Natura 2000 sites

Reg. Ref.	Description	Status
F11A/0436 'Miller's Glen'	'Phase 1' Parent Permission: 245 units, amended by subsequent permissions to 243 units	243 units complete
F11A/0473 'Westmill'	'Phase 2' Parent Permission: 224 units and the village centre, amended by subsequent permissions to 249 units	Civic Square, 1372sqm commercial uses, 48 dwellings and creche complete.  108 dwellings under construction
F13A/0185 'Longview'	'Phase 3' Parent Permission 246 units, amended by both planning conditions and subsequent permissions to 181 units.	161 units complete
F17A/0666 'Meadowbank'	'Phase 4A' Parent Permission: 96 units amended by condition to 95 units	41 units complete 54 units under construction
F17A/0735 'Meadowbank'	'Phase 4B' Parent Permission: 98 units granted	53 units complete 45 units under construction
F17A/0687 'Meadowbank'	'Phase 4C' Parent Permission: 92 unit, amended by subsequent permission to 101 units.	101 units complete

In the event that multiple construction projects are underway concurrently with the subject development, there is a potential for construction pollutants entering water courses in this catchment to act in combination with one another. For this reason, this report has concluded that the potential for effects to arise to Malahide Estuary SAC/SPA could not be ruled out.

Other than during the construction phase, there are no plans or projects which can act in combination with the proposed development which can give rise to significant effect to Natura 2000 sites within the zone of influence.



Figure 2 – Site boundary and habitats



Figure 3 – Site location showing the location of the proposed surface water tank on the Balheary Road.





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.**

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 Saucerstown Stream and 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 depend upon these invertebrates 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 headwall will be constructed behind a temporary coffer dam 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). The CEMP is an integral part of the NIS. This includes the following site specific measures:

Construction runoff is heavily laden with silt which can block road gullies and reduce the hydraulic capacity in pipes and rivers, contributing to ponding and



flooding. Continued development without appropriate controls will ultimately keep maintenance costs elevated, whether that be in cleaning gullies, jetting pipes, or dredging. Sediment control plans can be implanted on site to mitigate these issues.

Sediment basins and traps should be installed before any major site grading takes place. Additional sediment traps and silt fences should be installed as grading takes place to keep sediment contained on site at appropriate locations. Key runoff-control measures should be located in conjunction with sediment traps to divert water from planned undisturbed areas away from the traps and sediment-laden water into the traps. Diversions should be installed above the areas to be disturbed before any grading operations. Any perimeter drains should be installed with stable outlets before opening major areas for development. Any additional facilities needed for runoff control should be installed as grading takes place.

During grading operations temporary diversions, slope drains, and inlet and outlet protection installed in a timely manner can be very effective in controlling erosion and sediment build up.

The main run-off conveyance system with inlet and outlet protection measures should be installed early and used to convey stormwater run-off through the development site without creating gullies or channels. Install inlet protection for storm drains as soon as the drain is functional to trap sediment on site in shallow pools and to allow the flood flows to enter the storm drainage system safely. Install outlet protection at the same time as the conveyance system to prevent damage to the Broadmeadow River.

[...]

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

- **Straw Bales:** Straw bales can 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. Proper installation and maintenance is necessary to ensure their performance.
- **Silt Fencing:** A silt fence is made of a woven synthetic material, geotextile, and acts to filter run-off. Silt fencing can 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 area of concentrated flow. If concentrated flow conditions exist, a more robust filter should be considered.
- **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, runoff should 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 a desired location. If the drains are being eroded, they can be lined with geotextile fabric or large stones or boulders.

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

This report contains an analysis of the proposed project and its relationship with areas designated under the Habitats and Birds Directives. Pathways exist between the development site and two such areas and these have been described in detail in the AA Screening Report. Following this analysis, it was concluded that significant effects to the Malahide Estuary SAC and SPA could not be ruled out. Specifically, this may arise from the impact to intertidal habitats and species from pollution during the construction phase. Arising from this assessment, mitigation has been proposed.

With the implementation of these measures adverse effects to the integrity of the Malahide Estuary SAC and SPA will not occur. This conclusion is based on best scientific knowledge.

## References

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