

7.0 BIODIVERSITY

7.1 Introduction

This Ecological Impact Statement has been prepared by Pádraic Fogarty of OPENFIELD Ecological Services. Pádraic Fogarty has worked for over 20 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. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA). Pádraic has completed numerous biodiversity chapters for EIAR (previously referred to as flora and fauna in EIS) for housing schemes similar in nature to the subject development.

7.2 Study Methodology

The assessment was carried out in accordance with the following best practice methodology: draft 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Environmental Protection Agency, 2017) and 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). This includes a desk-based study on available biodiversity-related information relevant to the development site.

A comprehensive description of the proposed development is presented in Chapter 3 of this EIAR. A site visit was carried out on the 15th of February 2019 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 nomenclature for vascular plants is taken from *The New Flora of the British Isles* (Stace, 2010) and for mosses and liverworts *A Checklist and Census Catalogue of British and Irish Bryophytes* (Hill et al., 2009).

February lies outside the optimal survey period for general habitat surveys (Smith et al., 2010) but it was nevertheless possible to classify all habitats on the site to Fossitt level 3. February lies outside the season for surveying breeding birds while it is within the optimal season for surveying amphibians or large mammals. While the habitats and flora survey was undertaken outside of the optimal survey season for higher plants, this is not considered to be a significant limitation in this instance due to the overwhelmingly built nature of the subject lands. While bird surveys were undertaken outside of the breeding season, this is not considered to impose a significant limitation on the findings of this report, as the lands are of limited value and potential for birds, being largely composed of buildings and artificial surfaces, which will be replaced by similar habitats.

7.3 Description of the Receiving Environment

7.3.1 Zone of Impact

Best practice guidance suggests that an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995). However, some impacts are not limited to this distance

and so sensitive receptors further from the project footprint may need to be considered as this assessment progresses. This depends upon the zone of impact of the project which may include, for instance, hydrological pathways. This is shown in Figure 7.1.

There are a number of designations for nature conservation in Ireland including National Park, National Nature Reserve, RAMSAR site, UNESCO Biosphere reserves, Special Protection Areas (SPA – Birds Directive), Special Areas of Conservation (SAC – Habitats Directive); and Natural Heritage Areas. The mechanism for these designations is through national or international legislation. Proposed NHAs (pNHA) are areas that have yet to gain full legislative protection. They are generally protected through the relevant County Development Plan. Plans and developments within Dún Laoghaire-Rathdown County must comply with the policies and objectives of the Dún Laoghaire-Rathdown County Development Plan 2016 – 2022 (DLRCC, 2016a), which in turn references the National Biodiversity Action Plan 2017-2021 (DCHG, 2017), and the Dún Laoghaire-Rathdown Biodiversity Plan 2009-2013 (DLRCC, 2009). Natural heritage policies of the *Dún Laoghaire-Rathdown County Development Plan 2016 – 2022*:

- LHB19: Protection of Natural Heritage and the Environment
- LHB20: Habitats Directive
- LHB22: Designated Sites
- LHB23: Non-Designated Areas of Biodiversity Importance
- LHB26: Hedgerows
- LHB29: Invasive Species

There is no system in Ireland for the designation of sites at a local, or county level. The following areas were found to be located within the zone of influence of the application site:

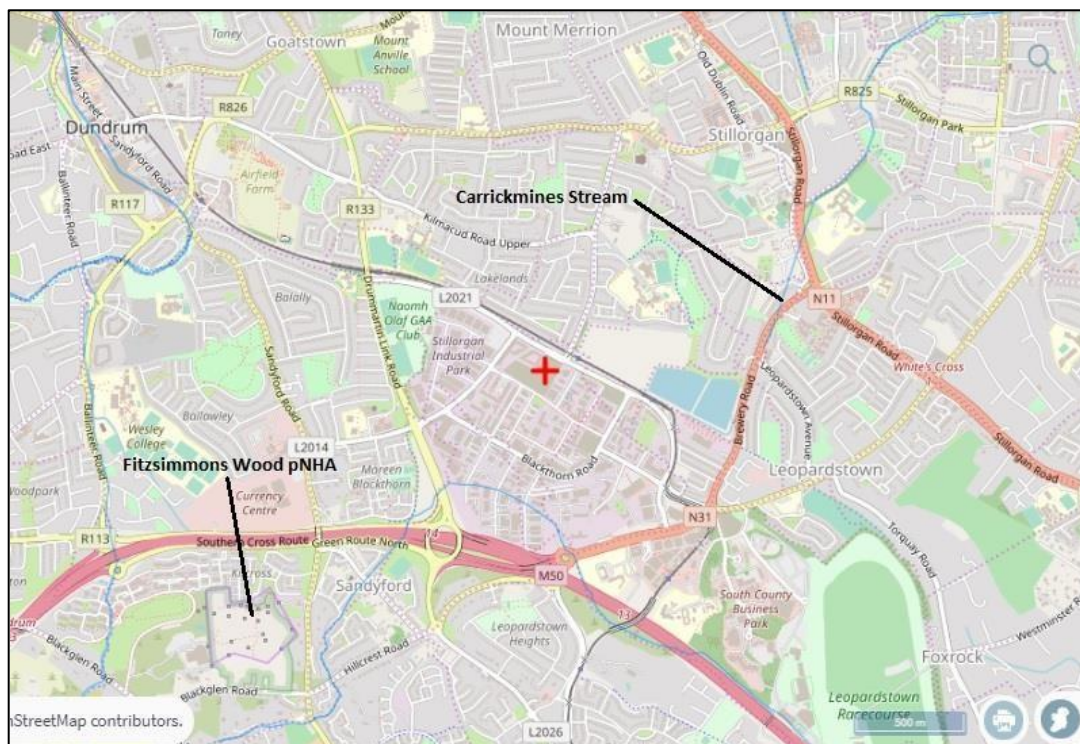


Figure 7.1: Site Location in South Dublin showing Local Water Courses and Areas Designated for Nature Conservation.

Source: www.epa.ie

Fitzsimons Wood pNHA (site code: 1753): this is an example of a naturalised woodland along a river valley with a range of native species.

South Dublin Bay SAC (side code: 0210). It has one qualifying interest (i.e. feature which qualifies the area as being of international importance) which is mudflats and sandflats not covered by seawater at low tide.

South Dublin Bay and Tolka Estuary SPA (side code: 4024) is concentrated on the intertidal area of Sandymount Strand, to the south of the city, as well as the Tolka Estuary. The North Bull Island SPA (site code: 0206) is largely coincident with the North Dublin Bay SAC with the exception of the terrestrial portion of Bull Island. Table 7.2 lists the features of interest for these SPAs.

Bird counts from BirdWatch Ireland are taken from Dublin Bay as a whole and are not separated between the two SPAs in this area. Dublin Bay is recognised as an internationally important site for water birds as it supports over 20,000 individuals. Table 7.1 shows the most recent count data available (Crowe et al., 2011)

Annual count data for Dublin Bay from the Irish Wetland Birds Survey						
Year	2010/11	2011/12	2012/13	2013/14	2014/15	Mean
Count	27,931	30,725	30,021	35,878	33,486	31,608

Table 7.1: Annual Count Data for Dublin Bay from the Irish Wetland Birds Survey.

Source: **IWeBS.**

There were also internationally important populations of particular birds recorded in Dublin Bay (i.e. over 1% of the world population): Light-bellied brent geese *Branta bernicla hrota*; Black-tailed godwit *Limosa limosa*; Knot *Calidris canutus* and Bar-tailed godwit *L. lapponica*.

Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]
Ringed Plover (<i>Charadrius hiaticula</i>) [A137]
Grey Plover (<i>Pluvialis squatarola</i>) [A140]
Knot (<i>Calidris canutus</i>) [A143]
Sanderling (<i>Calidris alba</i>) [A144]
Dunlin (<i>Calidris alpina</i>) [A149]
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]
Redshank (<i>Tringa totanus</i>) [A162]

Black-headed Gull (<i>Croicocephalus ridibundus</i>) [A179]
Roseate Tern (<i>Sterna dougallii</i>) [A192]
Common Tern (<i>Sterna hirundo</i>) [A193]
Arctic Tern (<i>Sterna paradisaea</i>) [A194]
Wetlands & Waterbirds [A999]

Table 7.2: Features of Interest for the South Dublin Bay and Tolka Estuary SPAs in Dublin Bay (EU code in square parenthesis)

South Dublin Bay pNHA (site code: 0210). This area is coincident with the SAC, indeed the SAC designation would supersede this older designation.

The NPWS web site (www.npws.ie) contains a mapping tool that indicates historic records of legally protected species within a selected Ordnance Survey (OS) 10km grid square. The Sandyford site is located within the square O22 and five species of protected flowering plant are highlighted. These species are detailed in Table 7.3. It must be noted that this list cannot be seen as exhaustive as suitable habitat may be available for other important and protected species.

In summary, it can be seen that of the five species none remains current according to the Botanical Society of the British Isles.

Species	Habitat ¹	Current status ²
<i>Cinopodium acinos</i> Basil Thyme	Field margins and sandy or gravelly places	Record pre-1970
<i>Galeopsis angustifolia</i> Red Hemp-nettle	Calcareous gravels	
<i>Puccinellia fasciculata</i> Borrer's salt-marsh grass	Muddy inlets on the coast	
<i>Misopates orontium</i> Lesser Snapdragon	Arable fields	
<i>Viola hirta</i> Hairy Violet	Sand dunes, grasslands, limestone rocks	
<i>Cervus nippon</i> Sika Deer	Coniferous woodland and adjacent heaths	Current
<i>Lutra lutra</i> Otter	Rivers, coasts and wetlands	Current
<i>Sciurus vulgaris</i> Red Squirrel	Woodlands	Current

Table 7.3: Known Records for Protected Species within the O22 10km Square

Water quality in rivers, canals and estuaries is monitored on an on-going basis by the Environmental Protection Agency (EPA). They assess the pollution status of a stretch of

¹ Parnell et al., 2012

² www.bsbi.com

river by analysing the invertebrates living in the substrate as different species show varying sensitivities to pollution. They arrive at a 'Q-Value' where Q₁ = grossly polluted and Q₅ = pristine quality (Toner et al., 2005). The subject lands are not in the catchment of any significant water course. The Carrickmines Stream runs approximately 500m to the south but mapping indicates it is extensively culverted in this location. This is a short

stream that runs from the Dublin Mountains to the Irish Sea at Loughlinstown. The river is highly modified and is likely to be culverted for much of its length. The EPA have no monitoring points and it is not assessed under the Water Framework Directive. These data are taken from the ENVision mapping tool on www.epa.ie.

7.3.2 Stakeholder Consultation

As result of the low ecological sensitivity of the subject lands, third party observations were not sought.

7.3.3 Site Survey

Aerial photography from the OSI and historic mapping shows that this area has been within the urban fabric of Dublin since historical times. A site visit was carried out on the 15th of February 2019 in fair weather and the following was noted:-

7.3.3.1 Flora

The site is dominated by **buildings and artificial surfaces – BL₃**. Within this area there are ruderal plant species such as Butterfly-bush *Buddleja davidii*, Canadian Fleabane *Conyza canadensis*, Self-heal *Prunella vulgaris* and rough grasses. A **treeline – WL₂** along the southern boundary is made up on non-native, and low biodiversity value, Leylandii Cypress *Cuprocyparis leylandii*. A **hedgerow – WL₁** along eastern boundary is mostly horticultural in origin with Cotoneaster and other non-native species, as well as with occasional Alder *Alnus glutinosa*, Brambles *Rubus fruticosus agg.* and Gorse *Ulex europaeus*. An **earth bank – BL₂** running across the centre of the site is grassy, with Thistles *Cirsium sp.*, Clovers *Trifolium sp.* and grasses such as Creeping Bent *Agrostis stolonifera*.

There are no plant species which are protected or considered to be rare or threatened. There are no alien invasive species as listed under Schedule 3 of SI no. 477 of 2011. There are no water courses, bodies of open water or habitats which could be considered wetlands. Overall the lands can be described as being of low biodiversity value.

7.3.3.2 Fauna

The site survey included incidental sightings or proxy signs (prints, scats etc.) of faunal activity, while the presence of certain species can be concluded where there is suitable habitat within the known range of that species. Table 7.4 details those mammals that are protected under national or international legislation in Ireland. Cells are greyed out where suitable habitat is not present or species are outside the range of the study area.

Protected mammals in Ireland and their known status within the O22 10km grid square³. Those that are greyed out indicate either that there are no records of the species from the National Biodiversity Data Centre. Since the site is not coastal the two Seal species are greyed out.

Species	Level of Protection	Habitat ⁴	
Otter <i>Lutra lutra</i>	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands	
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>		Disused, undisturbed old buildings, caves and mines	
Grey seal <i>Halichoerus grypus</i>	Annex II & V Habitats Directive; Wildlife (Amendment) Act, 2000	Coastal habitats	
Common seal <i>Phocaena phocaena</i>			
Whiskered bat <i>Myotis mystacinus</i>	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats	
Natterer's bat <i>Myotis nattereri</i>		Woodland	
Leisler's bat <i>Nyctalus leisleri</i>		Open areas roosting in attics	
Brown long-eared bat <i>Plecotus auritus</i>		Woodland	
Common pipistrelle <i>Pipistrellus pipistrellus</i>		Farmland, woodland and urban areas	
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		Rivers, lakes & riparian woodland	
Daubenton's bat <i>Myotis daubentonii</i>		Woodlands and bridges associated with open water	
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>		Parkland, mixed and pine forests, riparian habitats	
Irish hare <i>Lepus timidus hibernicus</i>		Annex V Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Pine Marten <i>Martes martes</i>			Broad-leaved and coniferous forest
Hedgehog <i>Erinaceus europaeus</i>	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows	

³ From the National Biodiversity Data Centre, excludes marine cetaceans

⁴ Harris & Yalden, 2008

Pygmy shrew <i>Sorex minutus</i>		Woodlands, heathland, and wetlands
Red squirrel <i>Sciurus vulgaris</i>		Woodlands
Irish stoat <i>Mustela erminea hibernica</i>		Wide range of habitats
Badger <i>Meles meles</i>		Farmland, woodland and urban areas
Red deer <i>Cervus elaphus</i>		Woodland and open moorland
Fallow deer <i>Dama dama</i>		Mixed woodland but feeding in open habitat
Sika deer <i>Cervus nippon</i>		Coniferous woodland and adjacent heaths

Table 7.4: Protected Mammals in Ireland and their Known Status within the O22 10km Grid Square⁵.

No direct evidence of any mammal was recorded. There was no evidence that Irish Hare is present while there is no suitable habitat for Otter, Badger, Deer, Pine Marten or Red Squirrel. Small mammals such as the Irish Stoat, Hedgehog and Pygmy Shrew are considered more or less ubiquitous in the Irish countryside, including on disused land in urban areas (Lysaght & Marnell, 2016). Fox *Vulpes vulpes* and Rabbits *Oryctolagus cuniculus* are common in Dublin along with Brown Rat *Rattus norvegicus*, House Mouse *Mus domesticus* and Field Mouse *Apodemus sylvaticus*. These species are not protected.

The trees within or adjacent to the subject lands were assessed for their suitability for roosting bats, having regard to the following guidelines:

- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016);
- Bat Mitigation Guidelines for Ireland (NPWS, 2006); and,
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006).

They were assessed based on the presence of features commonly used by bats. Examples of such features include:

- Natural holes;
- Woodpecker holes;
- Cracks/splits in major limbs;
- Loose bark; and,
- Hollows/cavities.

Features on the site were assessed for their suitability for roosting bats. Due to the low

⁵ From the National Biodiversity Data Centre, excludes marine cetaceans

ecological value of the treeline habitats, a lack of obvious roof cavities and a lack of mature trees with cracks and crevices, the features on the site were assessed as having low suitability for roosting bats (Hundt, 2012). A dedicated bat survey was not considered necessary.

February lies just outside the optimal season for surveying breeding birds. The following list of birds from the site is indicative however, and species here can be assumed to be breeding: Blackbird *Turdus merula*, Blue Tit *Parus caeruleus* and Hooded Crow *Corvus corone*. These species are of low conservation concern/green list (Colhoun & Cummins, 2013). Limited nesting habitat is available for common garden birds in areas of low vegetation.

There is no suitable habitat for breeding Common Frog *Rana temporaria* or Smooth Newt *Lissotriton vulgaris*. Common Lizard *Zootoca vivipara* is considered widespread. There are no streams or wetland habitats which could support fish.

Most habitats, even highly altered ones, are likely to harbour a wide diversity of invertebrates. In Ireland only one insect is protected by law, the Marsh Fritillary butterfly *Euphydryas aurinia*, and this is not to be found on in this area. Other protected invertebrates are confined to freshwater and wetland habitats and so are not present on this site.

7.3.4 Overall Evaluation of the Context, Character, Significance and Sensitivity of the Proposed Development Site

In summary, it has been seen that the application site is predominantly composed of artificial surfaces within a built-up area. There are no examples of habitats listed on Annex I of the Habitats Directive or records of rare or protected plants. There are no species listed as alien invasive as per SI 477 of 2011.

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). These are reproduced in Table 7.5. From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in Table 7.6.



Figure 7.2: Habitat Map of the Subject Lands superimposed on an Aerial Photograph.

Source: www.bing.com.

Site Rating	Qualifying criteria
A International importance	<p>SAC, SPA or site qualifying as such.</p> <p>Sites containing 'best examples' of Annex I priority habitats (Habitats Directive).</p> <p>Resident or regularly occurring populations of species listed under Annex II (Habitats Directive); Annex I (Birds Directive); the Bonn or Berne Conventions.</p> <p>RAMSAR site; UNESCO biosphere reserve;</p> <p>Designated Salmonid water.</p>
B National importance	<p>NHA. Statutory Nature Reserves. Refuge for Flora and Fauna. National Park.</p> <p>Resident or regularly occurring populations of species listed in the Wildlife Act or Red Data List</p> <p>'Viable' examples of habitats listed in Annex I of the Habitats Directive</p>
C County importance	<p>Area of Special Amenity, Tree Protection Orders, high amenity (designated under a County Development Plan)</p> <p>Resident or regularly occurring populations (important at a county level, defined as >1% of the county population) of European, Wildlife Act or Red Data Book species</p> <p>Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the county</p>
D Local importance, higher value	<p>Sites containing semi-natural habitat types with high biodiversity in a county context, and a high degree of naturalness, or populations of species that are uncommon in the locality</p> <p>Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.</p>
E Local importance, lower value	<p>Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;</p> <p>Sites or features containing non-native species that are of some importance in maintaining habitat links.</p>

Table 7.5: Site Evaluation Scheme.

Source: NRA Guidance, 2009.

Evaluation of the importance of habitats and species on the Sandyford site	
Cypress treeline – WL2 Buildings and artificial surfaces – BL3 Non-native hedgerow – WL1 Earth Bank – BL2	Negligible ecological value

Table 7.6: Evaluation of the Importance of Habitats and Species on the Sandyford Site.

7.4 Characteristics of the Proposed Development

The proposed development will see site clearance and a construction phase to include road access, new apartments, and all associated infrastructure as shown in Figure 7.3. Vegetation on the site is to be entirely cleared. Post construction the land will be landscaped.

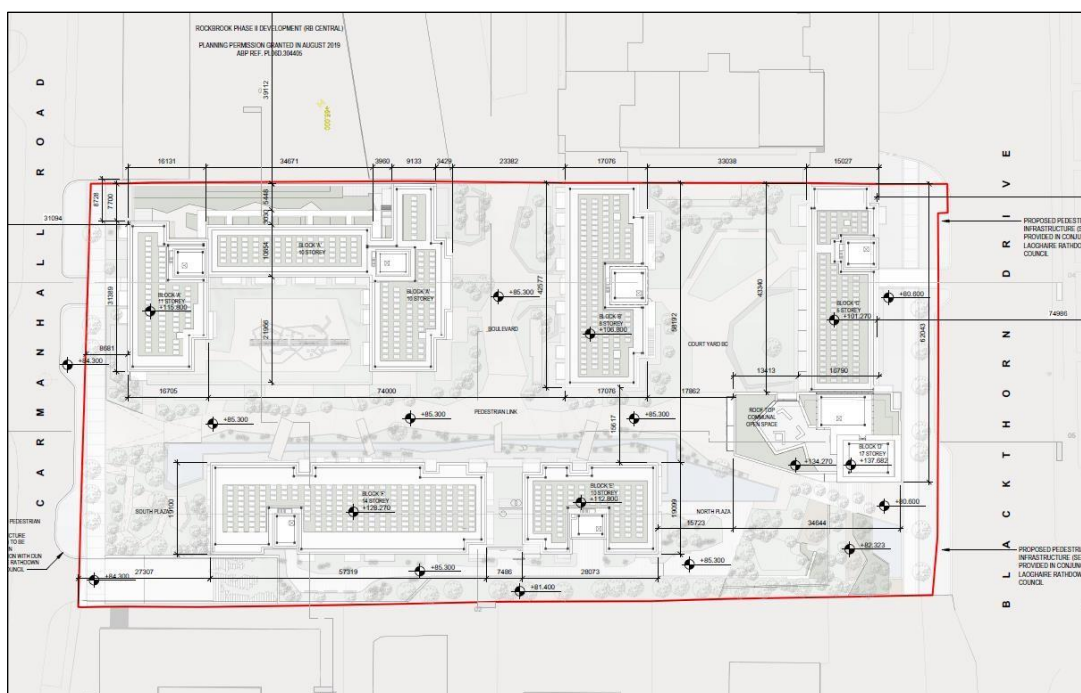


Figure 7.3: Development Overview.

Source: Henry J Lyons Architects, 2019.

7.5 Potential Impact of the Proposed Development

This section provides a description of the potential impacts that the proposed development may have on biodiversity in the absence of mitigation. Methodology for determining the significance of an impact has been published by the EPA. This is based on the valuation of the ecological feature in question (Table 7.6) and the scale of the predicted impact. Unplanned events have been considered throughout this chapter. In this way, it is possible to assign an impact significance in a transparent and objective way. Table 7.7 summarises the nature of the predicted impacts.

7.5.1 Construction Phase

The following potential impacts are likely to occur during the construction phase in the absence of mitigation:

1. The removal of habitats including buildings & artificial surfaces, earth bank, treelines and hedgerow. These are of negligible biodiversity value. The species to be found are common and widespread and for this reason the impact to biodiversity from the loss of this habitat is considered to be **neutral**. Planting new trees as part of a landscaping programme will enhance habitat on the site. A standalone Landscape Masterplan and Landscape Report have been prepared by Bernard Seymour Landscape Architects and are submitted with this application.
2. The direct mortality of species during demolition. Because of the lack of semi-natural vegetation there is a very low risk to nesting birds on this site from vegetation clearance. Nevertheless, all birds' nest and their eggs are protected under the Wildlife Act – despite the low risk the impact is potentially **moderate negative**.
3. Pollution of water courses through the ingress of silt, oils and other toxic substances. There are no significant fisheries rivers in this locality and so there are no likely effects to biodiversity arising from this phase. The impact is **slight**. Best practice site management should be followed to prevent pollution.

7.5.2 Operation Phase

The following potential impacts are likely to occur during the operation phase in the absence of mitigation:

4. Pollution of water from foul wastewater arising from the development. Wastewater will be sent to the municipal treatment plant at Ringsend. Upgrade works are needed as the plant is not currently meeting its requirements under the Urban Wastewater Treatment Directive. The foul discharge from the proposed development would equate to a small percentage of the overall licensed discharge at Ringsend WWTP and thus, would not impact on the overall water quality within Dublin Bay. Pollution effects are most acute in freshwater systems where the capacity for dilution is low and the consequent risk of eutrophication is high. The Ringsend WWTP discharges into Dublin Bay which is currently classified as 'unpolluted' by the EPA despite long-running compliance issues at the plant. A

separate screening report for Appropriate Assessment specifically examines the impacts of this project on Natura 2000 areas in Dublin Bay however there is currently no evidence that non-compliance issues at the WWTP are having negative effects to features of high ecological value (e.g. wading birds or intertidal habitats). Irish Water was recently granted planning permission to undertake upgrading works on a phased basis that will address compliance issues by and expected date of 2022. The impacts from this source are **neutral**.

5. Pollution of water from surface water run-off. The Greater Dublin Strategic Drainage Study (2005) identified issues of urban expansion leading to an increased risk of flooding in the city and a deterioration of water quality. This arises where soil and natural vegetation, which is permeable to rainwater and slows its flow, is replaced with impermeable hard surfaces. A new surface water drainage system is to be installed in accordance with the GSDSDS. No negative effect arising to the quantity or quality of surface run-off will occur. The impacts from this source are **slight positive**.
6. Impacts to Natura 2000 areas (SACs or SPAs) in Dublin Bay or other protected areas are not predicted to occur, principally due to the separation distance between the site and these areas.

A full assessment of potential effects to these areas is contained within a separate Screening Report for Appropriate Assessment.

Significance level of likely impacts in the absence of mitigation		
Impact		Significance
Construction phase		
1	Loss of habitat	Neutral
2	Mortality to animals during construction, particularly nesting birds	Moderate negative – permanent impacts to species with legal protection
3	Pollution of water during construction phase	Slight
Operation phase		
4	Wastewater pollution	Neutral
5	Surface water pollution	Slight positive

Table 7.7: Significance Level of Likely Impacts in the Absence of Mitigation.

Overall it can be seen that one potential moderate negative impact is predicted to occur as a result of this project in the absence of mitigation.

7.5.3 Cumulative Impacts

A number of the identified impacts can also act cumulatively with other impacts from similar developments in this area of Dublin. These primarily arise through the additional loading to the Ringsend Wastewater Treatment Plant. It is considered that this effect is not significant due to the planned upgrading works that will bring it in line with the requirement of the Urban Wastewater Treatment Directive.

There is potential for cumulative effects of proposed plans and projects within the Dún Laoghaire-Rathdown County Development Plan 2016-2022, Dublin City Development Plan 2016-2022, Fingal Development Plan 2017-2023, and other county level land use plans which can influence conditions in Dublin Bay via rivers and other surface water features. In this instance, the incorporation of SUDS attenuation measures will result in a slight positive effect to surface water quality.

Increasing urbanisation of Dublin, and in particular land use change from agricultural to urban uses, is resulting in the loss of habitat for common species of plants and animals. In this case, no high value habitats are to be lost while post-construction landscaping will provide additional resources for wildlife.

7.6 Avoidance, Remedial and Mitigation Measures

This report has identified one impact that was assessed as 'moderate negative' and therefore mitigation is needed to reduce the severity of this potential effect. This may arise from habitat loss, where clearance works are undertaken during the nesting season. All birds' nests, eggs or hatchlings are protected under the Wildlife Act. Disturbance to any nest can only be done under licence from the National Parks and Wildlife Service (NPWS).

7.6.1 Mitigation Measures Proposed

The following mitigation measures are proposed for the development

Construction Phase

- 1: Disturbance of birds' nests

Deliberate disturbance of a bird's nest is prohibited unless under licence from the National Parks and Wildlife Service. If possible, site clearance works should proceed outside the nesting season, i.e. from August to February inclusive. If this is not possible, vegetation must first be inspected by a suitably qualified ecologist. If a nest is encountered then works must stop, until such time as nesting has ceased. Otherwise, a derogation licence must be sought from the NPWS to allow the destruction of the nest.

2. Pollution during the construction phase

Best practice guidance from Inland Fisheries Ireland (2016) will be followed to prevent pollution. Dangerous substances such as oils and fuels will be stored at all times in a bunded area. Only clean water should enter public surface water sewers. Where necessary, silt traps will be used to remove sediment and solid matter prior to discharge to surface water sewers. The site manager will be responsible for ensuring that pollution does not occur and site personnel will be trained in the importance of pollution prevention.

7.7 Predicted Impacts of The Proposed Development

This section allows for a qualitative description of the resultant specific direct, indirect, secondary, cumulative, short, medium and long-term permanent, temporary, positive and negative effects as well as impact interactions which the proposed development may have, assuming all mitigation measures are fully and successfully applied.

After mitigation, no significant residual effects are likely to arise to biodiversity arising from this project.

7.8 Monitoring

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant. In this case no significant negative effects are likely to arise, and so additional monitoring is not required.

7.9 Do Nothing Scenario

Were the project not to proceed there would be no perceptible change to the biodiversity value of the site given that it is largely composed of impermeable hard surfaces.

7.10 Interactions

There are interactions between biodiversity and the hydrology/water chapter as well as landscaping. Measures to enhance the surface water characteristics from the site (through SUDS) will also benefit water bodies by improving water quality and reducing pulse flow impacts. The introduction of soft landscaping will provide habitat for invertebrates and birds.

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