Ecological Impact Statement for Strategic House Development at at a site on Whitechurch Road, Rathfarnham, Dublin 16

Compiled by OPENFIELD Ecological Services

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For BCDK ltd and Coill Avon Ltd

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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 (EcIA) in Ireland. OPENFIELD is a full member of the Institute of Environmental Management and Assessment (IEMA).

2 STUDY METHODOLOGY

The assessment was carried out in accordance with the following best practice methodology: 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' by the Institute of Ecology and Environmental Management (IEEM, 2018). This included a desk-based study to gather available information on the biodiversity of the development site as well as field studies.

Site visits were carried out on the January 29th and October 31st 2019 and May 27th 2020. 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).

May lies within the optimal survey period for general habitat surveys (Smith et al., 2010) and so it was possible to classify all habitats on the site to Fossitt level 3. May also lies within the optimal season for surveying amphibians and Badgers.

Separate studies of bat activity were carried out between 2019 and 2021 and while these reports are presented separately.

3 EXISTING RECEIVING ENVIRONMENT

3.1 Zone of Influence

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 is shown in figure 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. 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 1 – Site location (red cross) showing local water courses and areas designated for nature conservation (from www.epa.ie).

South Dublin Bay SAC (side code: 0210) is concentrated on the intertidal area of Sandymount Strand. 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 largely coincident with the SAC boundary with the exception of 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 1 lists the features of interest for these SPAs.

Table 1 – Features of interest for the South Dublin Bay and Tolka Estuary SPAs in Dublin Bay (EU code in square parenthesis)

Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
Oystercatcher (*Haematopus ostralegus*) [A130]
Ringed Plover (*Charadrius hiaticula*) [A137]
Grey Plover (*Pluvialis squatarola*) [A140]
Knot (*Calidris canutus*) [A143]
Sanderling (*Calidris alba*) [A144]
Dunlin (*Calidris alpina*) [A149]
Bar-tailed Godwit (*Limosa lapponica*) [A157]
Redshank (*Tringa totanus*) [A162]
Black-headed Gull (*Croicocephalus ridibundus*) [A179]
Roseate Tern (*Sterna dougallii*) [A192]
Common Tern (*Sterna hirundo*) [A193]
Arctic Tern (*Sterna paradisaea*) [A194]
Wetlands & Waterbirds [A999]

Bird counts form 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 2 shows the most recent count data available (Crowe et al., 2011).

Table 2 – Annual count data for Dublin Bay from the Irish Wetland Birds Survey (IWeBS)

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

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 bernicula hrota*; Black-tailed godwit *Limosa limosa*; Knot *Calidris canutus* and Bar-tailed godwit *L. lapponica*.

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 subject site is located within the square O12 and six species of protected flowering plant are highlighted. These species are

detailed in Table 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.

Table 3 – Known records for protected species within the O13 10km square

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

In summary it can be seen that of the six species of flora only three records remain current. Opposite-leaved Pondweed was recorded as being 'common in the Grand Canal' in the *Flora of County Dublin* (Doogue et al., 1998). This source elaborates that the plant was "scattered along the Grand Canal at Dolphin's Barn from Portobello to Charlemont Bridge, and between Drimnagh and Kilmainham."

The EU's Water Framework Directive (WFD) stipulates that all water bodies were to have attained 'good ecological status' by 2015 or with certain exceptions, by 2027 at the latest. This includes estuarine waters and in 2010 the first River Basin Management Plan (RBMP) was published to address pollution issues. This included a 'programme of measures' which was to be completed. A second RBMP was published in 2018 and this includes a list of 190 'priority areas for action' where progress will be focused upon for the 2018-2021 period.

The monitoring stations along the River Dodder in Dublin City show moderate pollution. There are no recent data from the Whitechurch Stream (a sample from 1991 showed moderate pollution). The Dodder enters the River Liffey near the East Link bridge in Dublin city centre. The lower Liffey Estuary has most recently been assessed by the Environmental Protection Agency (EPA) as 'good status'. The

[1] Parnell et al., 2012
[2] www.bsbi.com

coastal water beyond the estuary is also assessed as 'good status' (from www.epa.ie). These classifications indicate that water quality downstream of the Custom House is currently meeting the requirements of the WFD.

3.2 Stakeholder Consultation

Details of the project have been sent to Inland Fisheries Ireland for fisheries observations. An email response was received stating:

The Whitechurch is a tributary of the Owendoher River which in turn is the most important nursery and recruitment tributary in the Dodder system. The Whitechurch has populations of Brown Trout, European Eel and lamprey. Thus, it is vital to note that salmonid waters constraints apply to any development in this area.

IFI should be consulted directly in relation to any proposal to manipulate surface water channels and installation of the new bridge (including production of a works method statement) and once due consideration is given, requests that it be informed at least 3-4 weeks in advance of any diversion work to be carried out during channel alterations of any kind (as de-stocking of river channels may be necessary). Should in-stream works be required, they must be carried out between July to September as specified in the IFI's guidelines document.

Just as an observation, I note the bridge will span the river where there is already abutments right at the stream edge. Could there be the option to remove the original abutments and set the new abutment back from the river edge, thus restoring some natural channel?

Response
Instream works will only be carried out between July and September while a final construction method statement will be sent to IFI well in advance of works as per this request. In addition, as per the request above, the abutments will be removed from the existing bridge to restore the natural river channel.

3.3 Site Survey

Aerial photography from the OSI and historic mapping shows that this area has been in agricultural use but the vicinity has seen substantial changes in recent decades including the construction (and subsequent widening) of the M50 motorway. The immediate vicinity of the site is composed of a combination of residential developments, agricultural land and road infrastructure.

3.3.1 Flora

The site is divided into two separate portions: a northern portion (site 2) and a southern portion (site 1).

Site 1 is a series of fields of **improved agricultural grassland – GA1** which are grazed by cattle and sheep. This is composed of grasses such as Cock's-foot *Dactylis glomerata,* Creeping Bent *Agrostis stolonifera* and Perennial Rye *Lolium perenne* along with White Clover *Trifolium repens,* Docks *Rumex sp.,* Thistle *Cirsium sp.* and other common grassland plants. The boundary with the motorway is a recently-planted **hedgerow – WL1** with Maple *Acer sp.,* Birch *Betula sp.,* Beech *Fagus sylvatica* and Larch *Larix decidua.* Nearby **buildings and artificial surfaces – BL3** are associated with stretches of the non-native New Zealand Broadleaf *Grisilinea littoralis,* Sycamore *Acer pseudoplatanus* and very large Cypress *Cuprocyparis sp.* Using methodology from the Heritage Council these recently-planted or non-native hedgerows can be assessed as 'lower significance' (Foulkes et al., 2013).

Traditional field boundaries elsewhere are native hedgerows composed of Elder *Sambucus nigra,* Hawthorn *Crataegus monogyna,* Blackthorn *Prunus spinosa,* Grey Willow *Salix cinerea* and Ash *Fraxinus excelsior.* Due to their age and species diversity these are assessed as 'higher significance'.

The main parcel of land on Site 2 is a **dry meadow – GS2** and has not been recently grazed by animals. There are grasses such as Cock's-foot *Dactylis glomerata* and Creeping Bent *Agrostis stolonifera* as well as typical grassland plants such as Nettle *Urtica dioica* and Broad-leaved Dock *Rumex obtusifolius* with occasional Brambles *Rubus fruticosus agg.* Within this field there is a disused **building – BL3**.

Tall **treelines – WL2** to the south are dominated by the non-native Leyland Cypress *Cuprocyparis leylandii* and so are of low nature value ('lower significance'). A **hedgerow – WL1** to the north-west and north-east is of native origin with Hawthorn *Crataegus monogyna,* Brambles, Ivy *Hedera helix* but also the non-native Snowberry *Symphoricarpos albus.* This is a 'higher significance' feature.

The Whitechurch Stream is an **eroding river – FW1** with a riparian vegetation including Cherry Laurel *Prunus laurocerasus,* Sycamore *Acer pseudoplatanus* and Winter Heliotrope *Petasites fragrans.* It forms a corridor with a tall treeline and **broadleaved woodland – WD2** with tall Ash, Sycamore, Horse Chestnut *Aesculus hippocastanum* and the non-native Snowberry *Symphoricarpos albus*. At site 2 there is a large Crack Willow *Salix fragilis.* The stream forms the eastern boundary of both Site 1 and Site 2 but is not fish passable as it is culverted under the M50 motorway as well as a number of other sections downstream of this point.

Along the R113 there is a thin strip of amenity grassland with widely-spaced, (relatively) recently planted trees consisting of Rowan *Sorbus aucuparia* and Goat Willow *Salix caprea.* This strip is of low, local biodiversity value.

There are no ponds or bodies of open water on the development lands and no habitats which could be considered wetlands. There are no plant species which are listed as alien invasive under Schedule 3 of SI No 477 of 2011. Overall the lands can be described as being of low biodiversity value although

'higher significance' treelines and hedgerows, along with the Whitechurch Stream and broadleaved woodland are all of high local value to biodiversity.

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 3 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.

Table 3 – Protected mammals in Ireland and their known status within this 10km grid square[3]. Those that are greyed out indicate either that suitable habitat is not present or that there are no records of the species from the National Biodiversity Date Centre.

Species	**Level of Protection**	**Habitat[4]**
Otter *Lutra lutra*	Annex II & IV Habitats Directive; Wildlife (Amendment) Act, 2000	Rivers and wetlands
Lesser horseshoe bat *Rhinolophus hipposideros*		Disused, undisturbed old buildings, caves and mines
Grey seal *Halichoerus grypus*	Annex II & V Habitats Directive; Wildlife (Amendment) Act, 2000	Coastal habitats
Common seal *Phocaena phocaena*		
Whiskered bat *Myotis mystacinus*	Annex IV Habitats Directive; Wildlife (Amendment) Act, 2000	Gardens, parks and riparian habitats
Natterer's bat *Myotis nattereri*		Woodland
Leisler's bat *Nyctalus leisleri*		Open areas roosting in attics
Brown long-eared bat *Plecotus auritus*		Woodland
Common pipistrelle *Pipistrellus pipistrellus*		Farmland, woodland and urban areas
Soprano pipistrelle *Pipistrellus pygmaeus*		Rivers, lakes & riparian woodland
Daubenton's bat *Myotis daubentonii*		Woodlands and bridges associated with open water
Nathusius' pipistrelle *Pipistrellus nathusii*		Parkland, mixed and pine forests, riparian habitats

[3] From the National Biodiversity Data Centre, excludes marine cetaceans
[4] Harris & Yalden, 2008

Irish hare *Lepus timidus hibernicus*	Annex V Habitats Directive; Wildlife (Amendment) Act, 2000	Wide range of habitats
Pine Marten *Martes martes*		Broad-leaved and coniferous forest
Hedgehog *Erinaceus europaeus*	Wildlife (Amendment) Act, 2000	Woodlands and hedgerows
Pygmy shrew *Sorex minutus*		Woodlands, heathland, and wetlands
Red squirrel *Sciurus vulgaris*		Woodlands
Irish stoat *Mustela erminea hibernica*		Wide range of habitats
Badger *Meles meles*		Farmland, woodland and urban areas
Red deer *Cervus elaphus*		Woodland and open moorland
Fallow deer *Dama dama*		Mixed woodland but feeding in open habitat
Sika deer *Cervus nippon*		Coniferous woodland and adjacent heaths

During the May 2020 survey a young Fox *Vulpes vulpes* was noted in the hedgerow to the north of Site 3. There were signs (flattened grass) that there is a den in this hedgerow. Although a number of mammals are known to be present in Dublin city, most notably Fox *Vulpes vulpes,* there are no habitats on the site which are suitable for the majority of these species. While Otter may be present along the River Dodder there are no suitable habitats on the development site for this aquatic species.

Full details of the bat fauna are described in the separate bat report.

The undisturbed nature of the Whitechurch Stream with dense vegetation alongside it continues to provide rich foraging for bats and other wildlife, forming an important wildlife corridor and an important piece of green infrastructure within the environs of Whitechurch."

May is within the suitable season for surveying breeding birds and the following species were noted: Robin *Erithacus rubecula,* Jackdaw *Crovus monedula,* Hooded Crow *C. corone,* Goldfinch *Carduelis carduelis,* Wood Pigeon *Columba palumbus,* Blackbird *Turdus merula,* Goldcrest *Regulus regulus* and, along the Whitechurch Stream, Grey Wagtail *Motacilla cinerea*. With the exception of Grey Wagtail these are all species of low conservation concern (Gilbert et al., 2021). The Grey Wagtail however is of high conservation concern due to a reduction in population and distribution, perhaps exacerbated by very cold winters in 2009/10 and 2010/11 (Balmer et al., 2013).

There are no suitable habitats on the site for amphibians. The Whitechuch Stream is of salmonid status and so is of high fisheries value, however to numerous barriers to movement (culverts and weirs) along the upper sections (including under the M50 motorway) diminish the habitat value. The Owendoher and, downstream, the Dodder are also of salmonid status.

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 built-up sites. Other protected invertebrates are confined to freshwater and wetland habitats and so are not present on this site.

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 within an increasingly built-up area of Dublin city. 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 or as 'most unwanted' by Invasive Species Ireland. Habitats are largely of low biodiversity value, except for native trees, hedgerow and woodland and the Whitechurch Stream (despite its low fisheries value).

Significance criteria are available from guidance published by the National Roads Authority (NRA, 2009). These are reproduced in table 4. From this an evaluation of the various habitats and ecological features on the site has been made and this is shown in table 5.

Figure 2 – Boundary and habitats of the subject site

Table 4 Site evaluation scheme taken from NRA guidance 2009

Site Rating	***Qualifying criteria***
A - International importance	SAC, SPA or site qualifying as such. Sites containing 'best examples' of Annex I priority habitats (Habitats Directive). Resident or regularly occurring populations of species listed under Annex II (Habitats Directive); Annex I (Birds Directive); the Bonn or Berne Conventions. RAMSAR site; UNESCO biosphere reserve; Designated Salmonid water
B - National importance	NHA. Statutory Nature Reserves. Refuge for Flora and Fauna. National Park. Resident or regularly occurring populations of species listed in the Wildlife Act or Red Data List 'Viable' examples of habitats listed in Annex I of the Habitats Directive

C - County importance	Area of Special Amenity, Tree Protection Orders, high amenity (designated under a County Development Plan) 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 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
D - Local importance, higher value	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 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.
E - Local importance, lower value	Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; Sites or features containing non-native species that are of some importance in maintaining habitat links.

Table 5 Evaluation of the importance of habitats and species on the subject site

Buildings and artificial surfaces – BL3 Improved agricultural grassland – GA1 Dry Meadow – GS2 Lower significance hedgerows and treelines – WL1/WL2 Amenity grassland with trees – GA2	Local importance, lower value
Eroding Stream – FW1 Higher significance hedgerows and treelines – WL1/WL2 Broadleaved woodland – WD2	Local importance, higher value

4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The project is described thus, as per the planning application:

The proposed development on a site that extends to 6.77 hectares includes the derelict Kilmashogue House (southern lands) and Coill Avon house (northern lands), adjacent roads in the control of South Dublin County and Dun Laoghaire Rathdown County Councils and consists of the following developments: -

- Demolition of Kilmashogue House and outbuildings and demolition of Coill Avon house and outbuildings;
- The refurbishment and re-use of 2 no. stone outbuildings for community use, to be incorporated into an area of public open space on the southern lands;
- The construction of a mixed-use development comprising neighbourhood centre and 178 no. residential units comprising 72 no. houses, 38 no. apartments and 68 no. duplex apartments;
- The 72 no. houses will comprise 2, 2.5 and 3-storey detached, semi-detached and terraced units to include:-
    - 6 no. 2-bed houses;
    - 45 no. 3-bed houses;
    - 21 no. 4-bed houses;
- The 38 no. apartments and 68 no. duplex apartments are located across 7 no. buildings ranging in height from 3 to 5-storey consisting of 1 no. Block A/B, 1 no. Block C, 1 no. Block E, 1 no. Block S and 3 no. Blocks T-type as follows: -
    - **Block A/B:** 5-storey over basement and podium accommodating 10 no. 1-bed apartments, 16 no. 2-bed duplex apartments and 1 no. 3-bed duplex apartment with associated balconies/terraces;
    - **Block C:** 5-storey over basement accommodating 4 no. 1-bed apartments and 8 no. 2-bed duplex apartments with associated balconies/terraces;
    - **Block E:** 4-storey over basement accommodating 8 no. 1-bed apartments and 16 no. 2-bed duplex apartments with associated balconies/terraces;
    - **Block S:** 3-storey accommodating 2 no. 2-bed duplex apartments and 1 no. 3-bed apartment and 1 No. 3-bed duplex apartments with associated balconies/terraces;
    - **Block T:** 3no. 3-storey buildings accommodating 6 no. 1-bed apartments, 18 no. 2-bed duplex apartments, 9 no. 3-bed apartments and 6 no. 3-bed duplex apartments, all with associated balconies/terraces;
- Block A/B and Block C are arranged around a landscaped podium. The neighbourhood centre is located below this podium and accommodates a 2-level creche (313m²) at lower ground and ground floor level, and 3 no. retail/non-retail service/cafe units (470m^2) at ground level;
- The basement below Block A/B and Block C accommodates 50 no. car parking spaces, bicycle parking, bin stores, plant and staff service area (80m^2);

- The basement below Block E accommodates 35 no. car parking spaces, bicycle parking, bin store and plant;
- A section of link street with footpath and cycle path (approx. 438 linear metres) extending from the junction of Whitechurch Road and College Road on an alignment parallel to the M50, to provide access to the southern development lands and incorporating a bus turning circle;
- Upgrade works to College Road including a new two-way cycle track and relocated footpath from the Whitechurch Road junction to provide connectivity to the Slang River pedestrian/cycle Greenway;
- A new signalised crossroads junction to connect the proposed link street with Whitechurch Road and College Road;
- Upgrade to the existing vehicular access at the entrance to Coill Avon house on Whitechurch Road;
- Foul sewer drainage works along Whitechurch Road from the Kilmashogue junction to the existing junction at Glinbury housing estate;
- All landscaping, surface car parking, boundary treatments, infrastructure works, ESB substation, and associated site works and services.

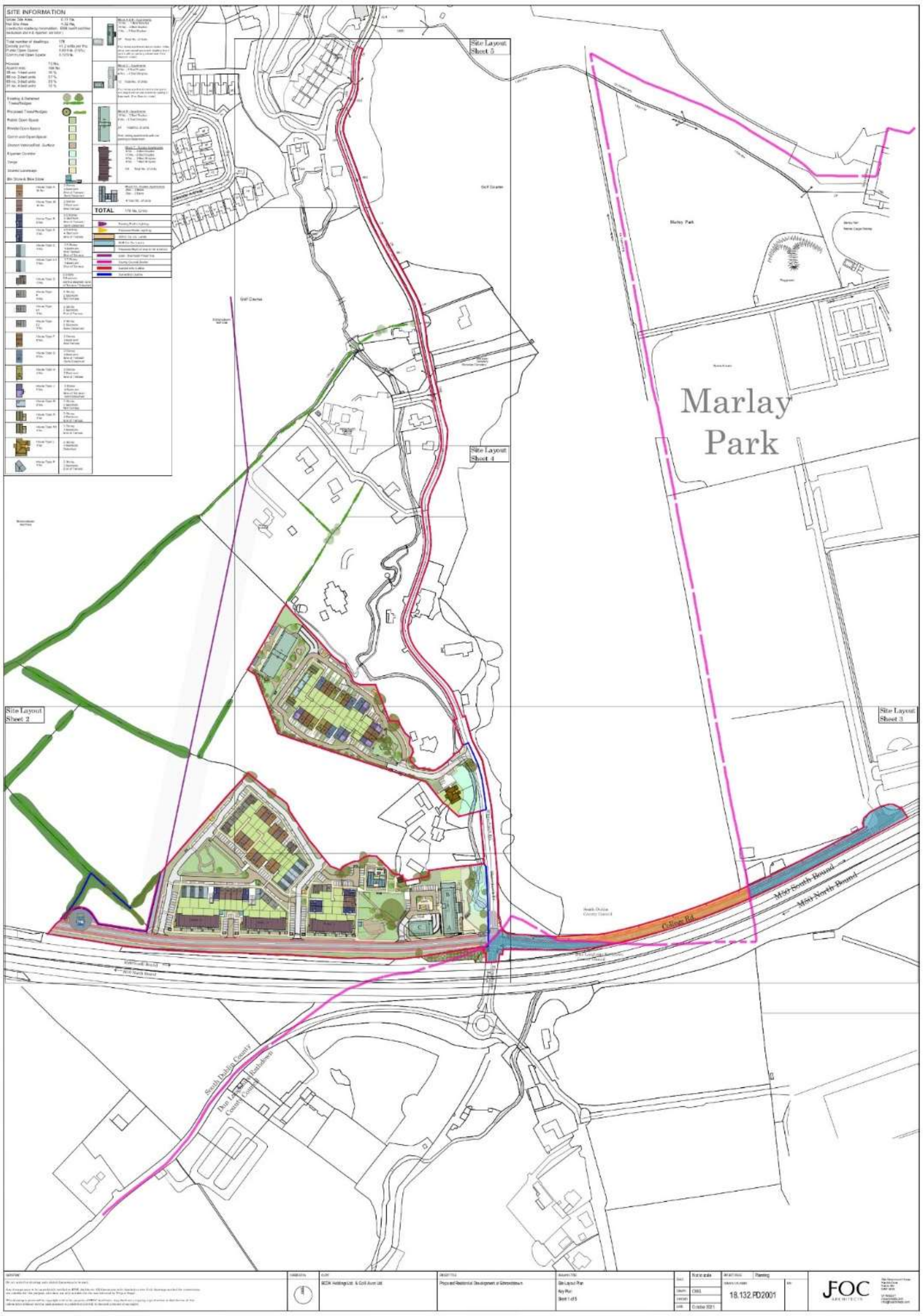

Figure 3 – Development overview

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 NRA. This is reproduced in table 6 and is based on the valuation of the ecological feature in question (table 5) and the scale of the predicted impact. In this way it is possible to assign an impact significance in a transparent and objective way. Table 7 summaries the nature of the predicted impacts.

Note that impacts to bats are dealt with separately in the bat survey report.

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 the buildings and individual trees.

Hedgerow and treelines habitat are to be largely retained. On site 1 (south), 450m of higher significance hedgerow and 200m of higher significance treeline are to be retained. 55m of higher significance hedgerow, 90m of lower significance hedgerow and 80m of lower significance treeline are to be removed. In addition there will be removal of 18 Rowan trees and 2 Goat Willow along the College Road to facilitate the construction of a new cycle path.

At site 2 (north), 180m of higher significance hedgerow and 300m of lower significance treeline are to be retained. 90m of lower significance treeline is to be removed. Figure 5 shows the proposed landscaping plan which retains a green area near the stream as well as providing for new planting of native and non-native species elsewhere. The installation of a new bridge will not introduce any barrier to the movement of aquatic life, including fish. In accordance with the request from Inland Fisheries Ireland

Habitat loss is predominantly of low value habitats with predominantly non-native vegetation although they are suitable feeding areas for bats. There are no confirmed bat roosts on the site although buildings do provide roost potential. The impact to local wildlife from this loss of these habitats will be minor negative. Planting new trees as part of a landscaping programme will enhance habitat on the site.

Figure 4 – Trees impacts (southern section) showing trees to be removed (red) and trees to be retained (green)

Figure 5 – Trees impacts (northern section) showing trees to be removed (blue and red) and trees to be retained (green)

2. The direct mortality of species during demolition.

This impact is most acute during the bird breeding season which can be assumed to last from March to August inclusive. Garden vegetation is suitable for nesting birds and mitigation will be required during the construction phase as all birds' nests and eggs are protected. The hedgerow on site 3 with the fox den is to be retained.

3. Pollution of water courses through the ingress of silt, oils and other toxic substances.

The proximity to the Whitechurch Stream means that there is a moderate risk of water pollution which could affect downstream stretches of the Dodder river system. The Dodder systems holds populations of Brown Trout *Salmo trutta,* European Eel and Lamprey and these species are sensitive to pollutants (Hendry & Craig-Hine, 2003). Works include a new bridge crossing as shown in figure 6. This new bridge will be fish passable and will remove existing abutments (as per request from IFI) in order to restore the natural riparian bank. Nevertheless, without mitigation these works have the potential to cause pollution and damage habitat for aquatic biodiversity. This impact is potentially moderate negative.

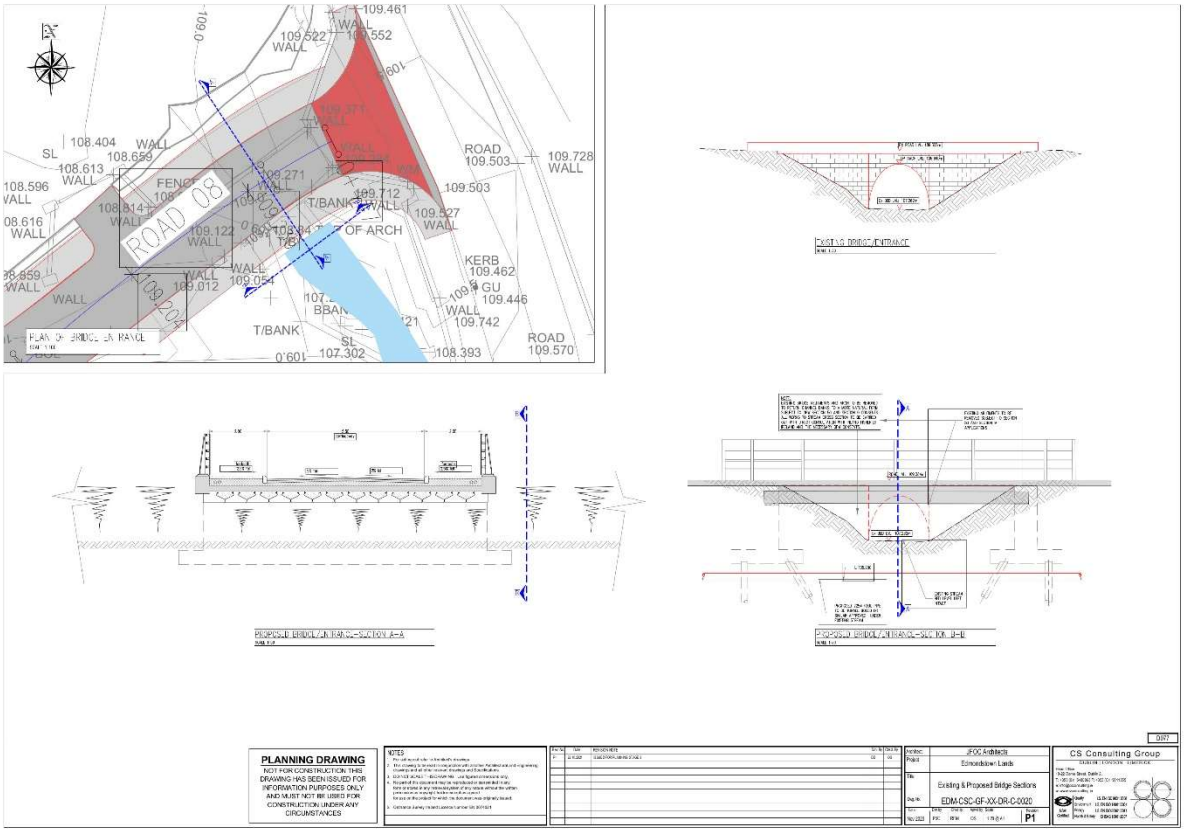

Figure 6 – Details of existing and proposed new river crossing.

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. 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 sites 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 is to undertake upgrading works on a phased basis and compliance issues will comprehensively addressed in the coming years. 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. 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. The proposed development will increase the area of hard standing and this may affect the pattern of run-off. SUDS measures are included in the project design in order to maintain run-off at a 'greenfield' rate. This will include attenuation storage, low water use devices, permeable paving, oil and grit traps and infiltration trenches. Excess surface water will ultimately flow to the Whitechruch Stream via new surface water outfalls for each site. Because of these measures there can be no negative effect arising to the quantity or quality of surface run-off.

6. Impacts to protected areas

No impacts are predicted to occur to any area designated for nature conservation. Impacts to Natura 2000 sites (SACs or SPAs) in Dublin Bay are not predicted to occur, principally due to the separation distance between the development site and these areas. A full assessment of potential effects to these areas is contained within a separate Screening Report for Appropriate Assessment. There are no other protected sites within the zone of influence of this project.

Table 6: Determination of significance matrix taken from NRA guidance Appendix 4 (2006)

Impact Level	***Site category***				
	A	***B***	***C***	***D***	***E***
Severe negative	Any permanent impact	Permanent impact to a large part of the site			
Major negative	Temporary impact to a large part of the site	Permanent impact to a small part of the site	Permanent impact to a large part of the site		
Moderate negative	Temporary impact to a small part of the site	Temporary impact to a large part of the site	Permanent impact to a small part of the site	Permanent impact to a large part of the site	
Minor negative		Temporary impact to a small part of the site	Temporary impact to a large part of the site	Permanent impact to a small part of the site	Permanent impact to a large part of the site
Neutral (Negligible)	No impact	No impact	No impact	No impact	Permanent impact to a small part of the site
Minor positive				Permanent beneficial impact to a small part of the site	Permanent beneficial impact to a large part of the site
Moderate positive			Permanent beneficial impact to a small part of the site	Permanent beneficial impact to a large part of the site	
Major positive		Permanent beneficial impact to a small part of the site	Permanent beneficial impact to a large part of the site		

Table 7: Significance level of likely impacts <u>in the absence of mitigation</u>

Impact		Significance
Construction phase		
1	Loss of habitat	Minor negative
2	Mortality to animals during construction	Moderate negative – impact to features with legal protection
3	Pollution of water during construction phase	Moderate negative
4	Wastewater pollution	Neutral

5	Surface water pollution	Neutral
6	Protected areas	Neutral

Overall it can be seen that two potential moderate negative impacts are predicted to occur as a result of this project in the absence of mitigation.

5.2 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. 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.

In this instance the incorporation of SUDS attenuation measures into a city centre brown-field site is contributing to the cumulative positive effective of reducing rainwater run off to the municipal treatment plant.

6 DO NOTHING IMPACT

The site can be considered to have mostly low ecological value. This will not change in the absence of this project.

Water quality may improve throughout the Liffey catchment with the implementation of the Water Framework Directive however its target of ‘good ecological status’ for all water bodies has not been met. The River Dodder is among 190 ‘priority areas for action’ which are the focus of improvements over the 2018-2021 period. The Dodder joins the River Liffey near the East Link bridge and here the Lower Liffey Estuary is assessed as ‘good status’.

7 AVOIDANCE, REMEDIAL AND MITIGATION MEASURES

This report has identified two impacts that were assessed as 'moderate negative' and therefore mitigation is needed to reduce the severity of this potential effect.

7.1 Mitigation Measures Proposed

The following mitigation measures are proposed for the development

Construction Phase

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 demolition works should proceed outside the nesting season, i.e. from September to February inclusive. If a nest is encountered then works must stop until such time as nesting has ceased.

Pollution during construction

Measures will be taken, in accordance with best practice guideline from Inland Fisheries Ireland (2016) to prevent pollution entering the Whitechurch Stream. These will include storing fuels and dangerous substances in a bunded area at all times. A robust silt curtain or similar barrier will be installed along the stream to prevent loss of sediment to water and this will remain in place for the duration of the construction phase. The construction of the bridge will use pre-cast concrete if possible and will be installed following best practice guidelines from Inland Fisheries Ireland.

Instream works will be undertaken between July and September in accordance with IFI stipulations.

The installation of new surface water outfall points will be done behind bunded structures to prevent any loss of sediment or construction pollutants to the water.

8 PREDICTED IMPACTS OF THE PROPOSED DEVELOPMENT

With the full implementation of all mitigation measures, no negative effects to biodiversity are predicted to arise from this development which are assessed as moderate negative or greater in magnitude.

9 MONITORING

Monitoring is required where the success of mitigation measures is uncertain or where residual impacts may in themselves be significant.

Pollution prevention measures will require continual monitoring for the duration of the construction phase. At a minimum, daily checks will be necessary to ensure that pollution does not occur. This is more relevant during wet weather when a greater level of scrutiny many be required. The site manager will be responsible for the prevention of pollution and reporting any incidents to the relevant authorities were relevant.

After mitigation no significant effects are likely to arise as a result of this development to biodiversity so monitoring is not required.

10 BIODIVERSITY MANAGEMENT PLAN

As part of this application proposals are made to manage and enhance biodiversity during the operation phase of the project. Measures which have been agreed are:

- Participation in the all-Ireland Pollinator Plan. While the planting species chosen for the landscaping scheme have had regard to the 'Pollinating-friendly Planting Code' published at www.pollinators.ie the on-going maintenance of communal areas include a commitment to avoid the use of any herbicides, pesticides, slug pellets etc. Areas which have been assigned as 'native wildflower areas' are to be mowed once in April and again in September.
- The garden partitions have been designed to include a 13cm x 13cm gap to allow the free movement of Hedgehogs (this aperture is recommended by the British Hedgehog Preservation Society).
- Invasive and undesirable non-native species are to be controlled along the riparian margin areas within the control of the development. This will particularly include the eradication of Cherry Laurel *Prunus laurocerasus.*
- The wetland area to the south is to be allowed to rewild as far as practical with minimal intervention and so creating a broad wildlife margin along the stream in this location.
- Swift boxes are to be installed on the eaves of apartment blocks following instructions from https://www.swiftconservation.ie/. This will include playing tape recordings to attract Swifts during the first years of operation.

- Enhancement measures will include the installation of 10 bat boxes as per the recommendation of the bat ecologist. These will be installed by a suitably qualified ecologist as part of the landscaping phase.

The final landscaping plan is shown in figure 7.

Figure 7 – final landscaping

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