Environmental Impact Assessment Report (EIAR)

Volume 2 Appendices Addendum

Large Scale Residential Development at Holybanks, Swords, Co. Dublin

April 2025

In association with

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No Change

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No Change

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No Change

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No Change

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Appropriate Assessment Screening Report

Slight Change

Enviroguide
a DNV company

Appropriate Assessment Screening Report

PRESENTED TO

Cairn Homes
Proposed Holybanks Residential Development

April 25

DOCUMENT CONTROL SHEET

Applicant	Cairn Homes
Project Title	Proposed Holybanks Large-scale Residential Development
Document Title	Appropriate Assessment Screening Report

Revision	Status	Author(s)	Reviewed	Approved	Issue Date
0.0	Draft for internal Review	WMC *Ecologist*	CBH *Project Ecologist*	-	-
1.0	Draft for Client	WMC *Ecologist*	CBH *Project Ecologist*	SOD *Principal Ecologist*	29/02/2024
2.0	Final	WMC *Ecologist*	CBH *Project Ecologist*	SOD *Principal Ecologist*	22/08/2024
3.0	Updated Draft for Client	WMC *Ecologist*	CBH *Project Ecologist*	SOD *Principal Ecologist*	13/01/2025
4.0	Updated Final	WMC *Ecologist*	CBH *Project Ecologist*	SOD *Principal Ecologist*	03/04/2025

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1 INTRODUCTION

1.1 Background

Enviroguide Consulting was commissioned by Cairn Homes to prepare an Appropriate Assessment Screening Report for a Proposed Large-scale Residential Development, entitled 'Proposed Holybanks LRD' at Holybanks, Swords, Co. Dublin, hereafter referred to as 'Proposed Development' or 'Site', when referring to the application Site area. This report contains information to enable the Competent Authority to undertake Stage 1 Appropriate Assessment (AA) screening in respect of the Proposed Development.

This report has been updated in response to point 5 of the RFI (Decision Order No. PF/3148/24), issued by Fingal County Council on the 26th of November 2024, which states the following:

'*It appears from the submitted drawings 'petrol interceptor details' that the outfall of the detention basins in the north of the site is proposed to terminate directly into the Broadmeadow River, however the proposed methodology for same has not been outlined in the NIS or EIAR. The applicant is requested to setback the outfall location from the existing riverbank and naturalise to create a vegetated swale to avoid the need for in-stream works or gabions within the main river channel, in accordance with the objectives (objective GINH043 and GINH044) of the Fingal Development plan 2023-2029, which promotes removal of these structures where they occur and setback of new outfalls. Appropriately detailed design drawings and construction method statements for the surface water outfall shall be provided, and accordingly the AA Screening Report and Natura Impact Statement be reviewed, and revised/updated if necessary, to take account of any other changes to either the design or construction methodology, or the assessment of potential environmental impacts arising as a result of this FI request*'.

1.2 Quality Assurance and Competence

Enviroguide Consulting is multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All Enviroguide consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. WMC, Ecologist with Enviroguide, undertook the desktop research and authored this report. BMC, Ecologist with Enviroguide undertook the breeding and winter bird surveys. SH and YM, Ecologists

with Enviroguide undertook the habitat mapping to Fossitt. J. (2000) level 3 of all habitats at the site, preliminary fauna survey assessing the suitability of the habitats for and searching for signs of mammals, birds, amphibians, reptiles and rare or protected invertebrates, invasive flora survey and preliminary flora survey. EK carried out an updated ground truthing survey on the 1st of August 2024, following on from the previous aforementioned surveys carried out on the 9th of June 2023 and the 19th of July 2023.

BMC is an Ecologist and experienced Ornithologist with 13 years of bird survey experience. Brian is a longstanding and active member of Bird Watch Ireland and has provided Ornithology survey work for ecological consultancies, e.g., vantage points surveys of gulls, terns, raptors, waders and wildfowl; hinterland surveys of the above as well as riverine species; and breeding waders and country birds. Brian is highly experienced with all survey methodologies and with surveying all species groups of Irish birds and migrants.

WMC has a B.Sc. in Applied Freshwater and Marine Biology from Galway-Mayo Institute of Technology. WMC has four years of experience in ecological surveying and in this time, he has covered a wide range of ecological topics including ornithological surveying, bat surveying, badger surveying/exclusions, otter surveying, macroinvertebrate surveying and habitat surveying among others. WMC has also completed the field and report work of numerous planning surveys including Preliminary Ecological Appraisals (PEA), Appropriate Assessment Screenings, Natura Impact Statements (NIS), and Ecological Clerk of Works (ECoW) surveys.

YM is an Ecologist with Enviroguide and has a B.Sc. in Botany from Tokyo University of Agriculture and a M.Sc. in Botany from Hokkaido University. Yumi has practical field experience and provided flora surveys, rare and protected plant species surveys, phytosociological vegetation surveys, habitat assessments/mapping and invasive species surveys. YM has prepared several reports for AA screening, habitat assessment and Invasive Species Management Plan. YM is also a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

EK has a BSc in Psychology from the University of Maryland, USA and an MSc in Biodiversity and Conservation from Trinity College Dublin. His experience includes desktop research, literature-scoping review, and report writing as well as vegetation surveys, rare species surveys, and habitat mapping. EK has contributed to the preparation of several AA Screenings, Ecological Impact Assessments (EcIA) and EIAR Biodiversity Chapters, as well as Biodiversity Net Gain (BNG) Reports.

1.3 Description of Proposed Development

1.3.1 Site Location

The following details on the Site location (see Figure 1) have been extracted from the planning report (McGill Planning, 2024):

"*The site is located on the northern edge of the built-up area of Swords and is c.13.57 hectares in size. It is situated immediately north of Glen Ellan Road and is adjacent to the former site of Celentica/Motorola, known as Balheary Demesne/Balheary Industrial*

Park. Jugback Lane forms the western boundary and the Broad Meadow River flowing west-east along the northern boundary of the site. The subject site is an irregular shape. Within the boundaries of the site, there are no existing structures or buildings. In terms of topography, the site itself is relatively flat, gently sloping towards the Broadmeadow River. An existing hedgerow transverses north to south through the entire site. A private residence is located directly adjacent to the northwest corner of the site, along Jugback Terrace."

1.3.2 Proposed Development Description

1.3.2.1 Townhouse

"*The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 132 no. houses and 508 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin road / R125 Seatown West Roundabout.*"

1.3.2.2 Duplex (Option A)

"*The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 116 no. houses and 524 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin Road / R125 Seatown West Roundabout*".

1.3.3 Drainage and Water Supply

1.3.3.1 Surface water

Much of the surface water occurring on the Site of the Proposed Development will be absorbed by a variety of Sustainable urban Drainage Systems (SuDS) features which will be described below.

Surface water exits the Site via 2 outflows namely the outflow to the Broadmeadow River via the swale to the north of the Site and the outflow to the existing Swords surface water drainage network to the south of the Site. Surface water exiting to the swale and subsequent Broadmeadow River to the north does so via a 16.8L/S hydrobrake to restrict the flow of water during an exceptional rainfall event. Surface water exiting the Site to the Swords surface water network to the south does so via a 2L/S hydrobrake (see Figure 3 and Figure 4 for the townhouse layout, and Figure 8 and Figure 9 for the option A duplex layout).

There are a number of proposed SuDS features located across the Site including:

Raingarden – There are a number of Proposed raingardens to be constructed on Site. These SuDS features will have an increased porosity (in comparison to non-raingarden areas) of 30% which will allow surface water during a rainfall event to percolate naturally to the soil which avoids overburdening the Site's surface water outflows of the Broadmeadow Water to the north and the Swords surface water network to the south.

Permeable Paving – Permeable paving is proposed to be used outside of the majority of the dwellings on Site. Permeable paving allows water do percolate naturally into the ground where in a traditional (i.e. tarmac) paving system, water would be unable to percolate via the tarmac forcing it to flow to the Site's surface water drainage outflows, causing unnecessary overload.

Grass Swale/Land Drain – This SuDS feature will be located running north to south predominantly along the central open area on Site. Grass swales allow water to percolate naturally into the soil without overburdening the Site's outflows of the Broadmeadow Water or the Sword's surface water drainage network.

As per item 5 of the RFI received from Fingal County Council (Decision Order No. PF/3148/24), it has been requested that a naturalised/vegetated swale be installed between the northern surface water outfall and the Broadmeadow Water. This will be included as part of the project plans and will assist in percolating any outfall arising from the Proposed Development and will minimise any potential negative effects that a direct outfall would have on the natural hydrological regime of the Broadmeadow Water.

Detention Basin – There will be 6 no. detention basins located mainly in the north and south of the Site. Surface water will drain to and pool within these detention basins where water will be allowed to percolate to the ground naturally, without overburdening the Site's outflows of the Broadmeadow Water or the Swords surface water drainage network.

Green Roof – Apartment blocks 2 – 11 on Site will feature green roofs. Green roofs feature plant species which assist in the absorption of surface water after a rainfall event. This aids in preventing the surface water drainage network from becoming overloaded through natural processes, where the plant species absorb excess surface water through their roots and subsequently expel water vapour to the air by means of photosynthesis.

See Figure 5 and Figure 6 for the townhouse layout, and Figure 10 and Figure 11 for the option A duplex layout.

1.3.3.2 Foul Drainage

Foul drainage will arise from the various buildings across the Site including the apartment blocks, the houses and the duplexes and will be moved across Site by a foul drainage network which will flow roughly in the same directions as the surface water drainage will (see Figure 3 and Figure 4 for the townhouse layout, and Figure 8 and Figure 9 for the option A duplex layout). Foul sewage will be pumped out of the Site to the existing Swords foul sewage network south of the Site by a foul pumping

station located in the north of the Site. Foul water exiting the Site flows to the Swords Wastewater Treatment Plant (WwTP) which is running under capacity, though, is currently non-compliant in chemical and physical parameters of ammonia-total (as N), suspended solids and total nitrogen. However, although the plants outflow is non-compliant in the aforementioned parameters, it will not have an affect on the WFD objectives of the downstream waterbodies or Malahide Estuary SAC/Malahide Estuary SPA as a result of the following information (Uisce Éireann, 2023):

- The Swords WwTP has an additional hydraulic capacity and organic capacity, as the current max hydraulic loading is 56.9% of the peak hydraulic capacity as constructed, and the collected organic load is 85.9% of the organic capacity as constructed.
- The discharges from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

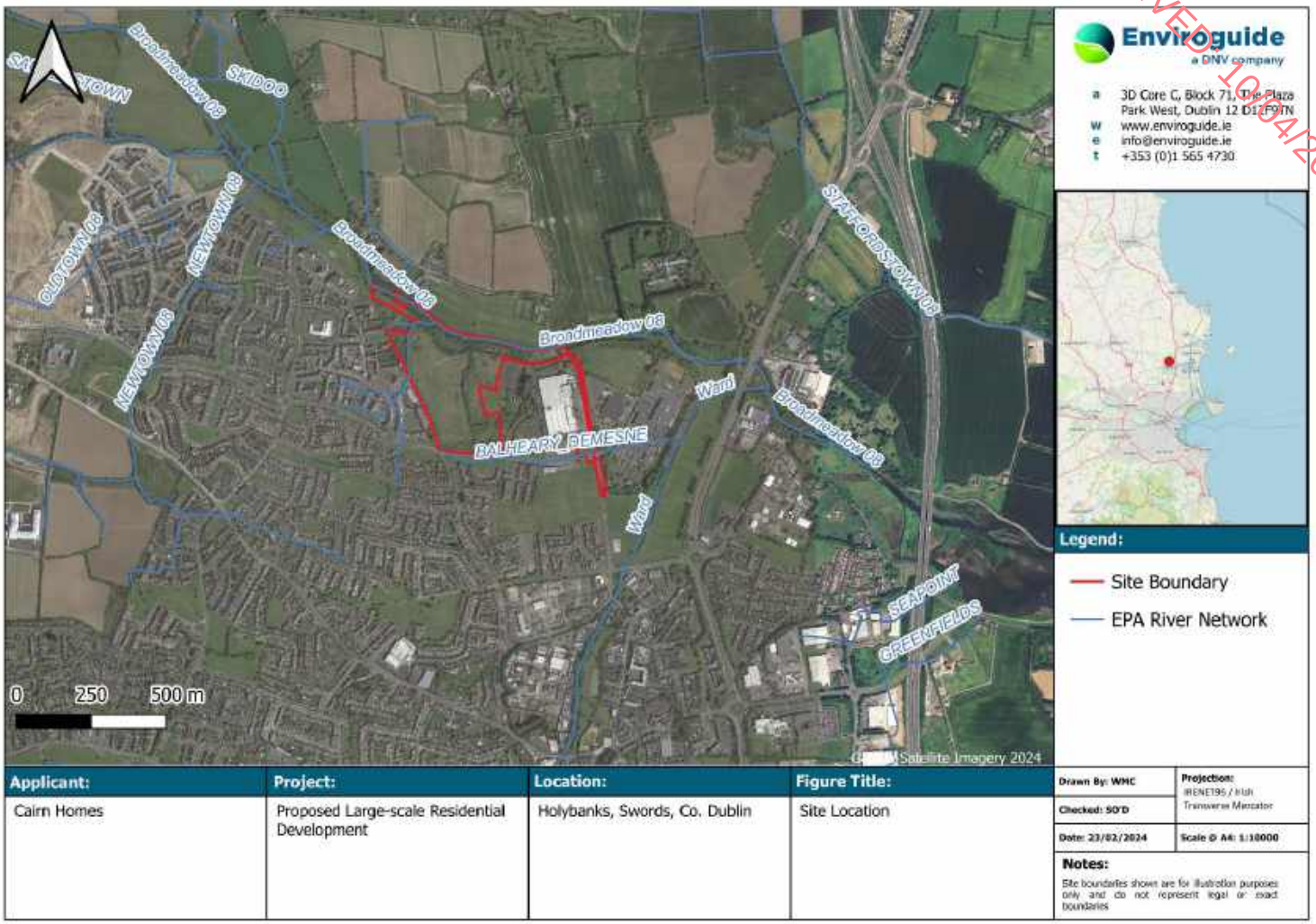

FIGURE 1. SITE LOCATION.

FIGURE 2. PROPOSED SITE LAYOUT (TOWNHOUSE) (DRG NO. PL-RFI-003, MCORM 2025).

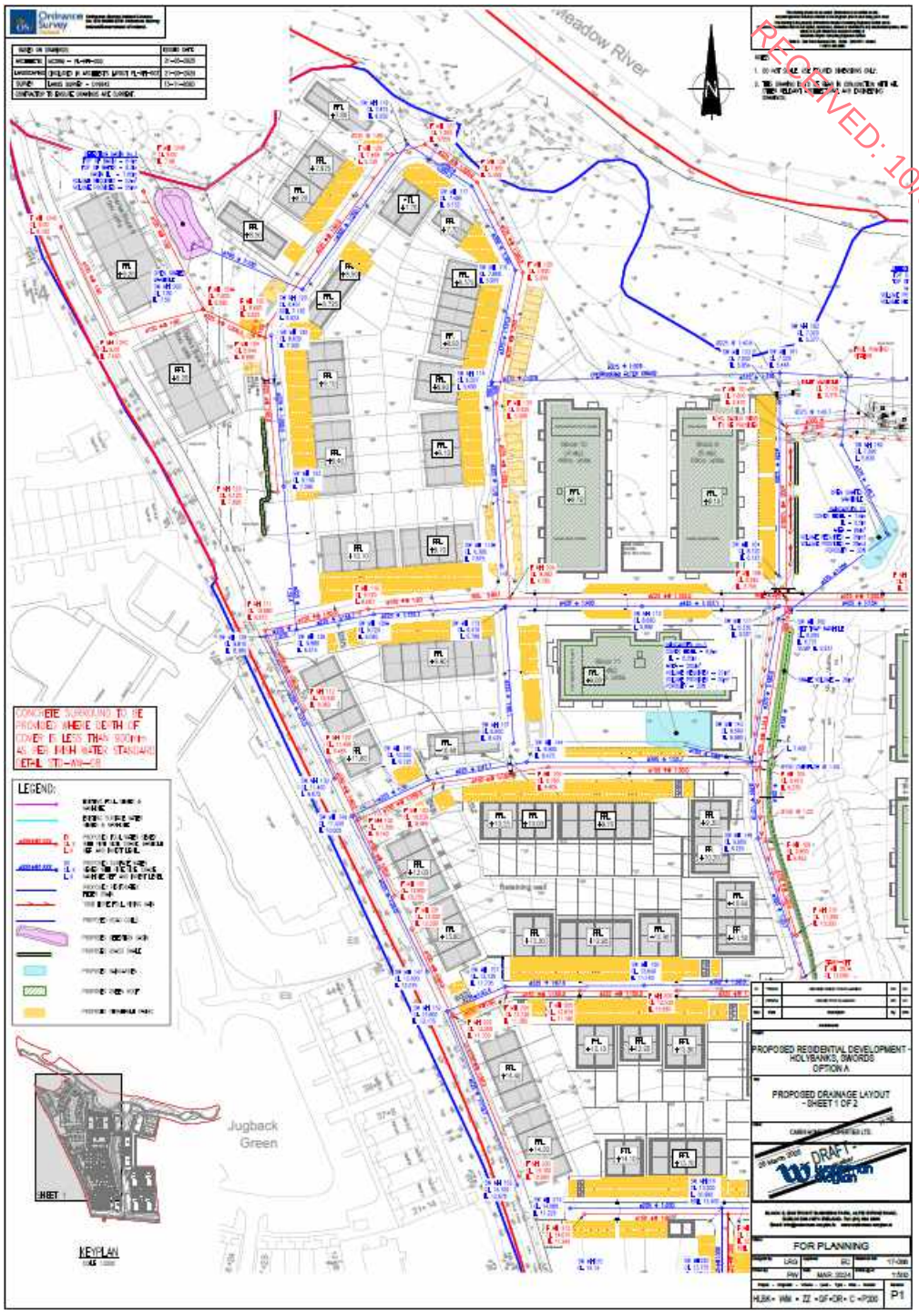

FIGURE 3. SURFACE AND FOUL WATER DRAINAGE (WESTERN) (TOWNHOUSE) (DRG NO. P200, WATERMAN MOYLAN 2025).

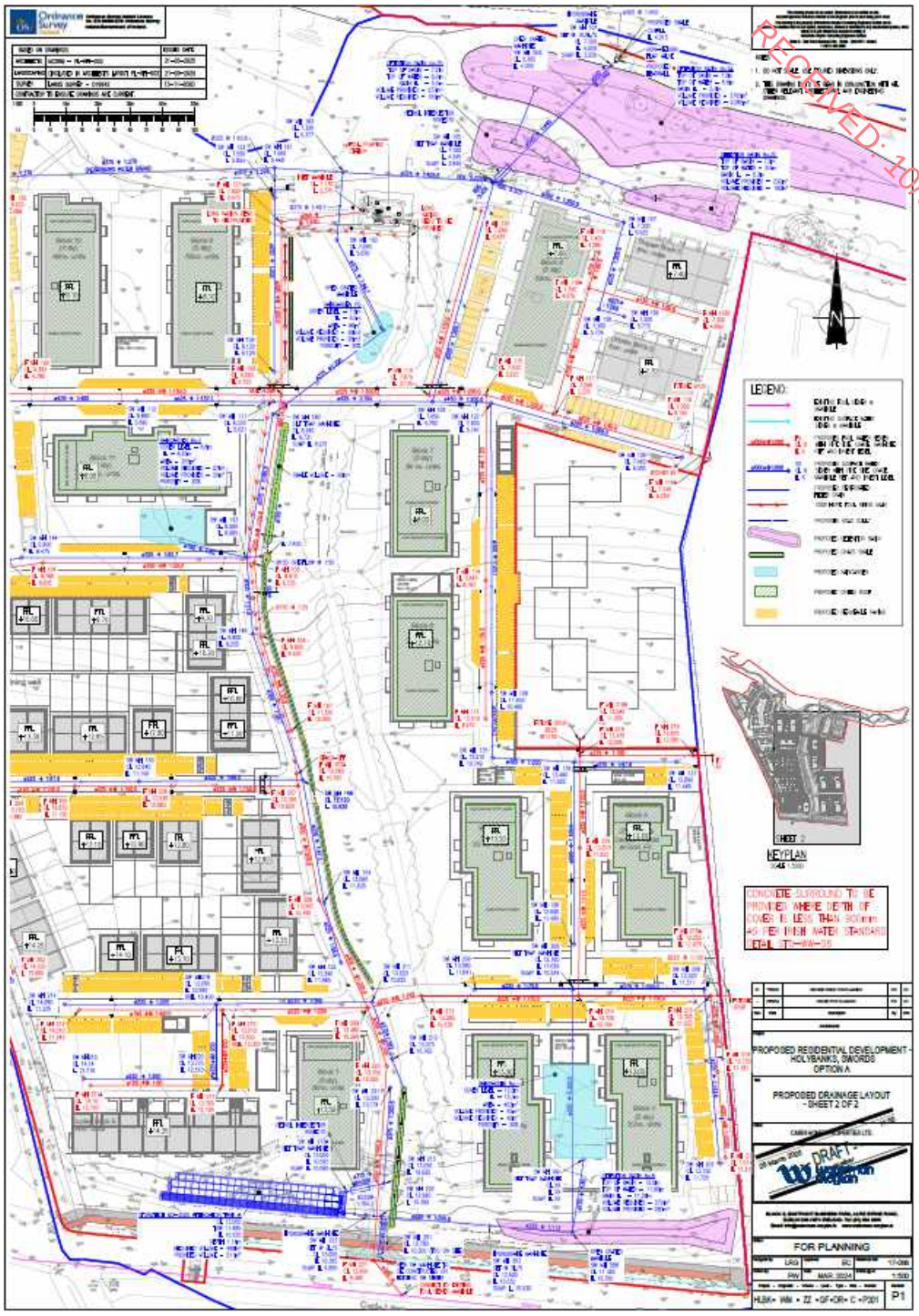

FIGURE 4. SURFACE AND FOUL WATER DRAINAGE (EASTERN) (TOWNHOUSE) (DRG NO. P201, Waterman Moylan 2025).

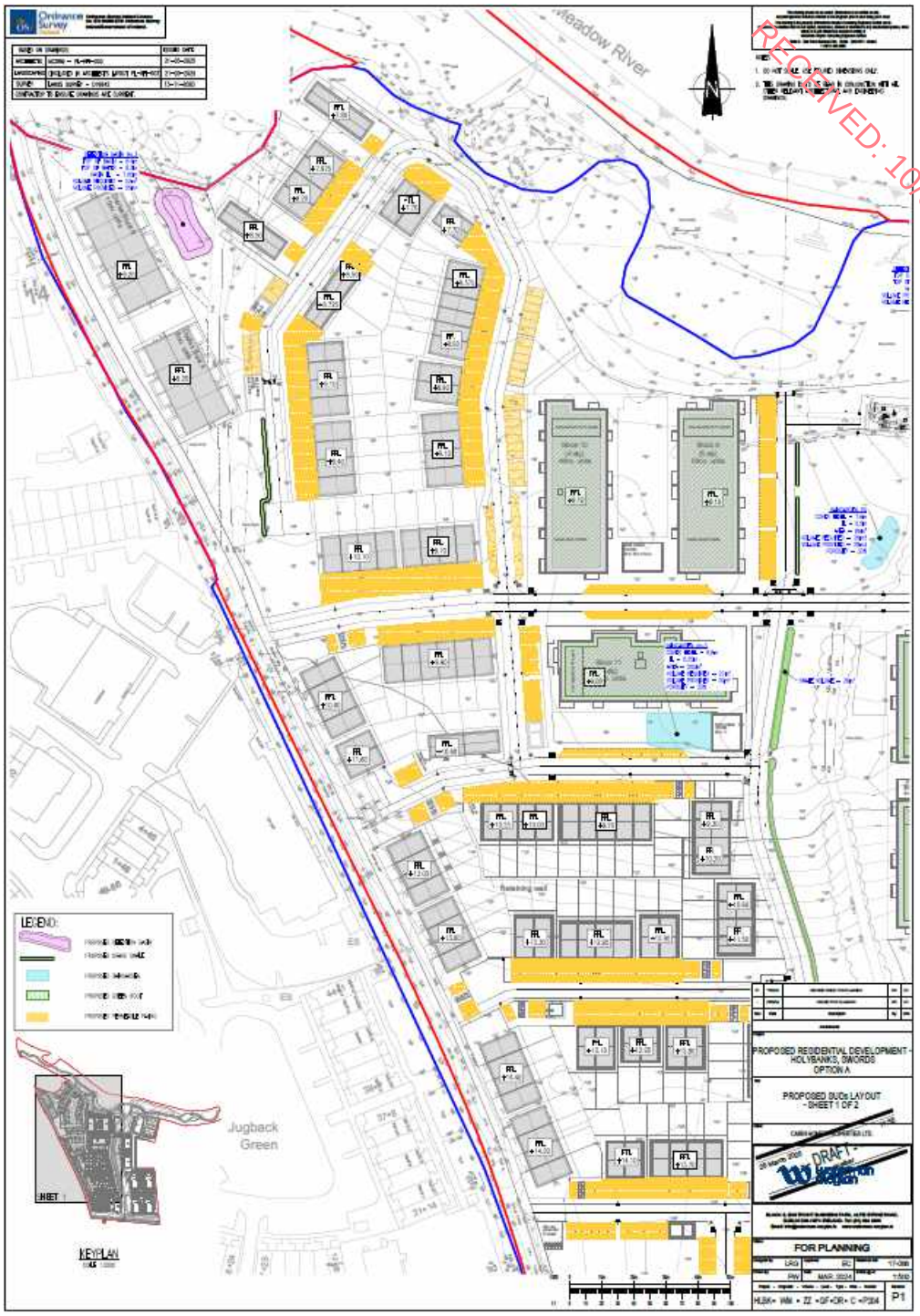

FIGURE 5. SUDS LAYOUT (WESTERN) (TOWNHOUSE) (DRG NO. P204, WATERMAN MOYLAN 2025).

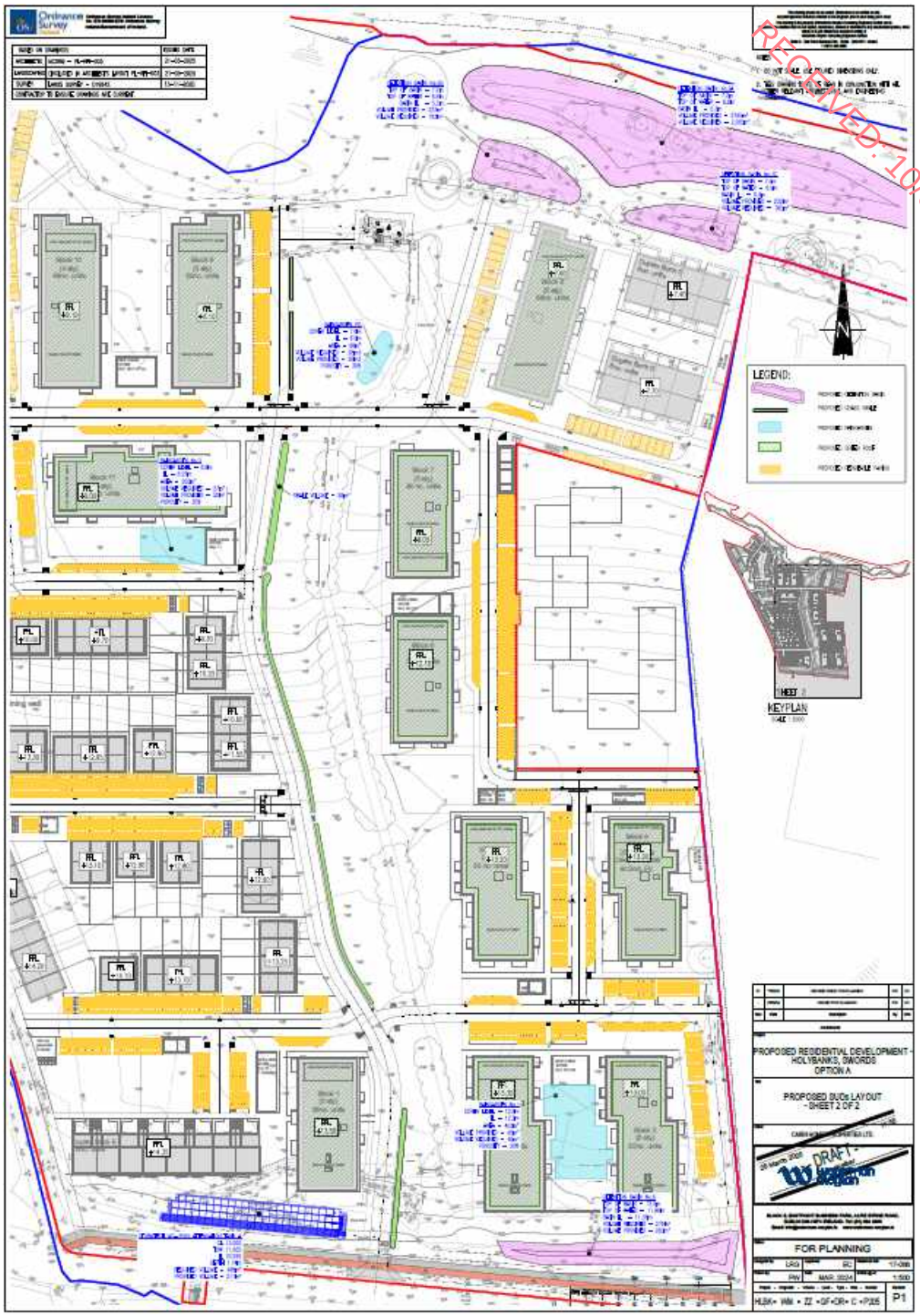

FIGURE 6. SUDS LAYOUT (EASTERN) (TOWNHOUSE) (DRG NO. P205, WATERMAN MOYLAN 2025).

FIGURE 7. PROPOSED SITE LAYOUT (DUPLEX – OPTION A) (DRG NO. PL-RFI-010, MCORM 2025).

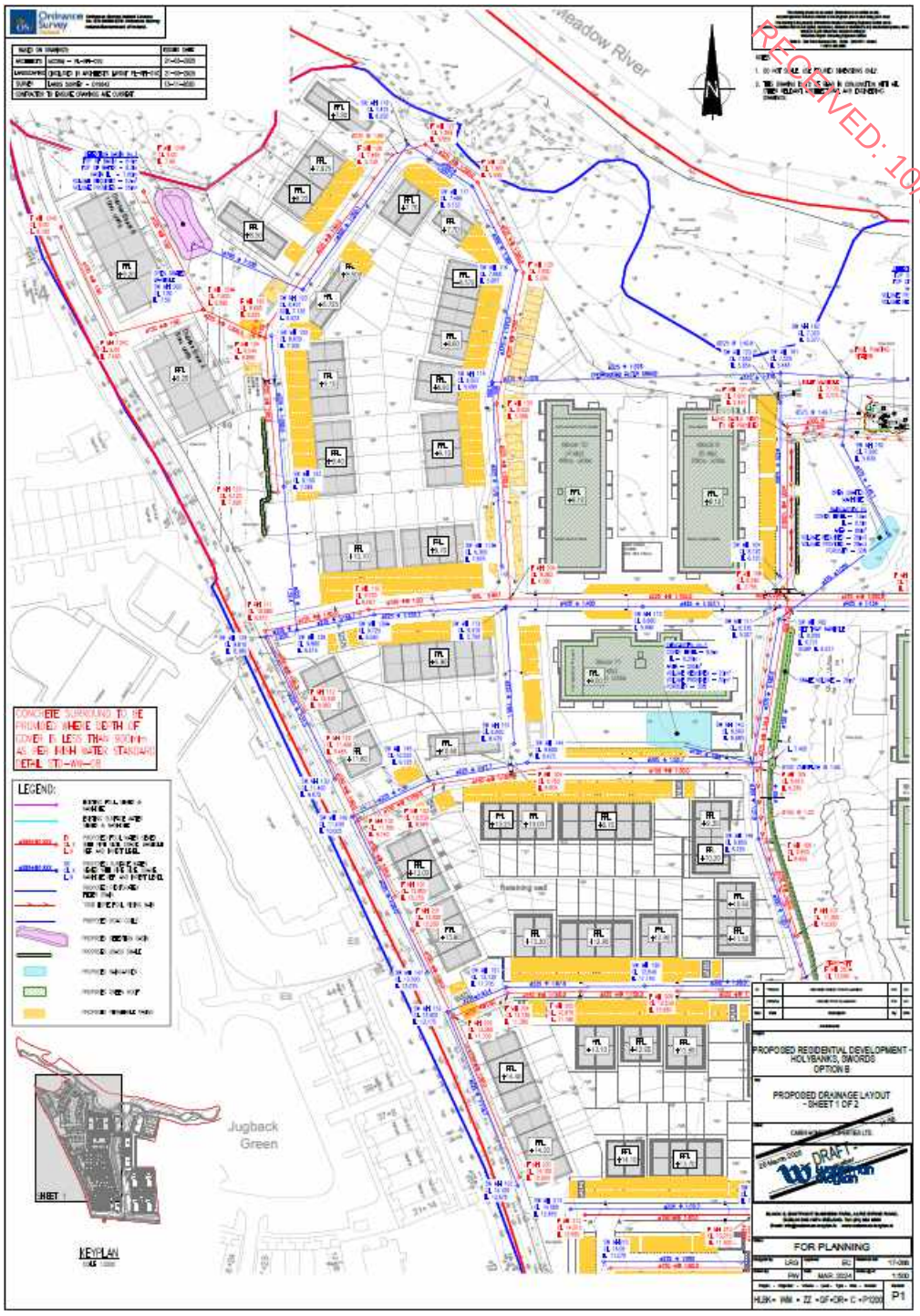

FIGURE 8. SURFACE AND FOUL WATER DRAINAGE (WESTERN) (DUPLEX – OPTION A) (DRG NO. P1200, WATERMAN MOYLAN 2025).

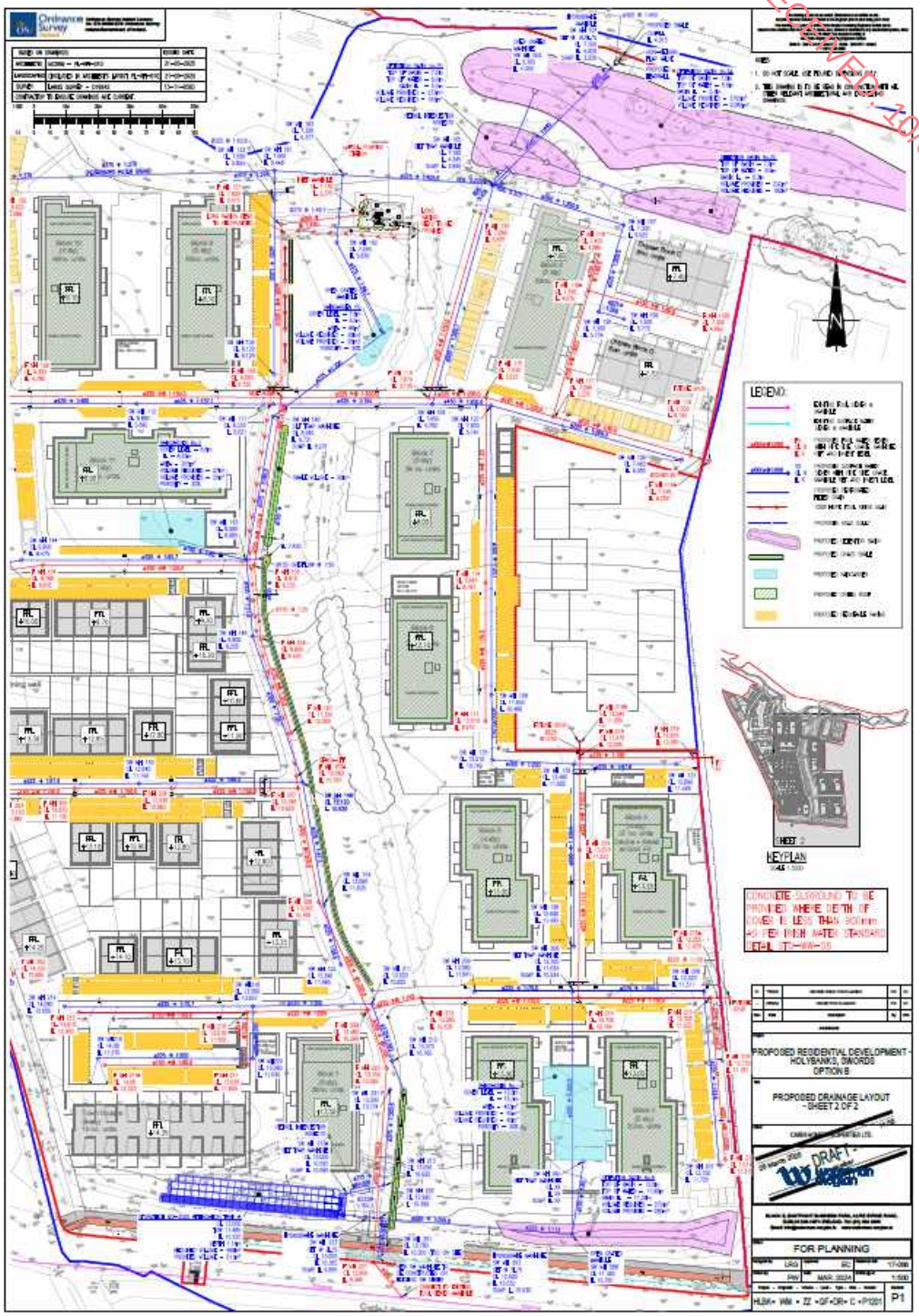

FIGURE 9. SURFACE AND FOUL WATER DRAINAGE (EASTERN) (DUPLEX – OPTION A) (DRG NO. P1201, WATERMAN MOYLAN 2025).

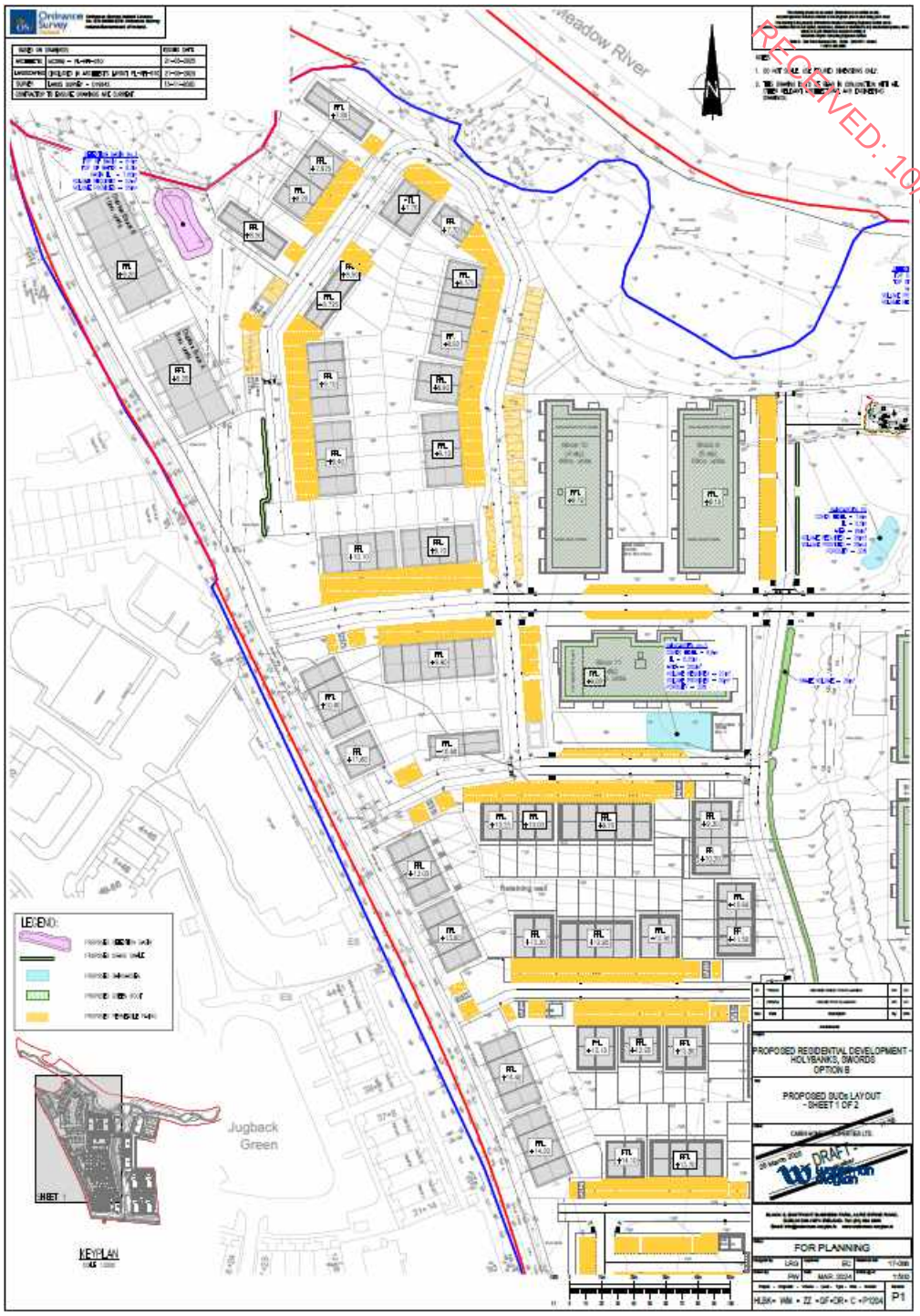

FIGURE 10. SUDS LAYOUT (WESTERN) (DUPLEX – OPTION A) (DRG NO. P1204, WATERMAN MOYLAN 2025).

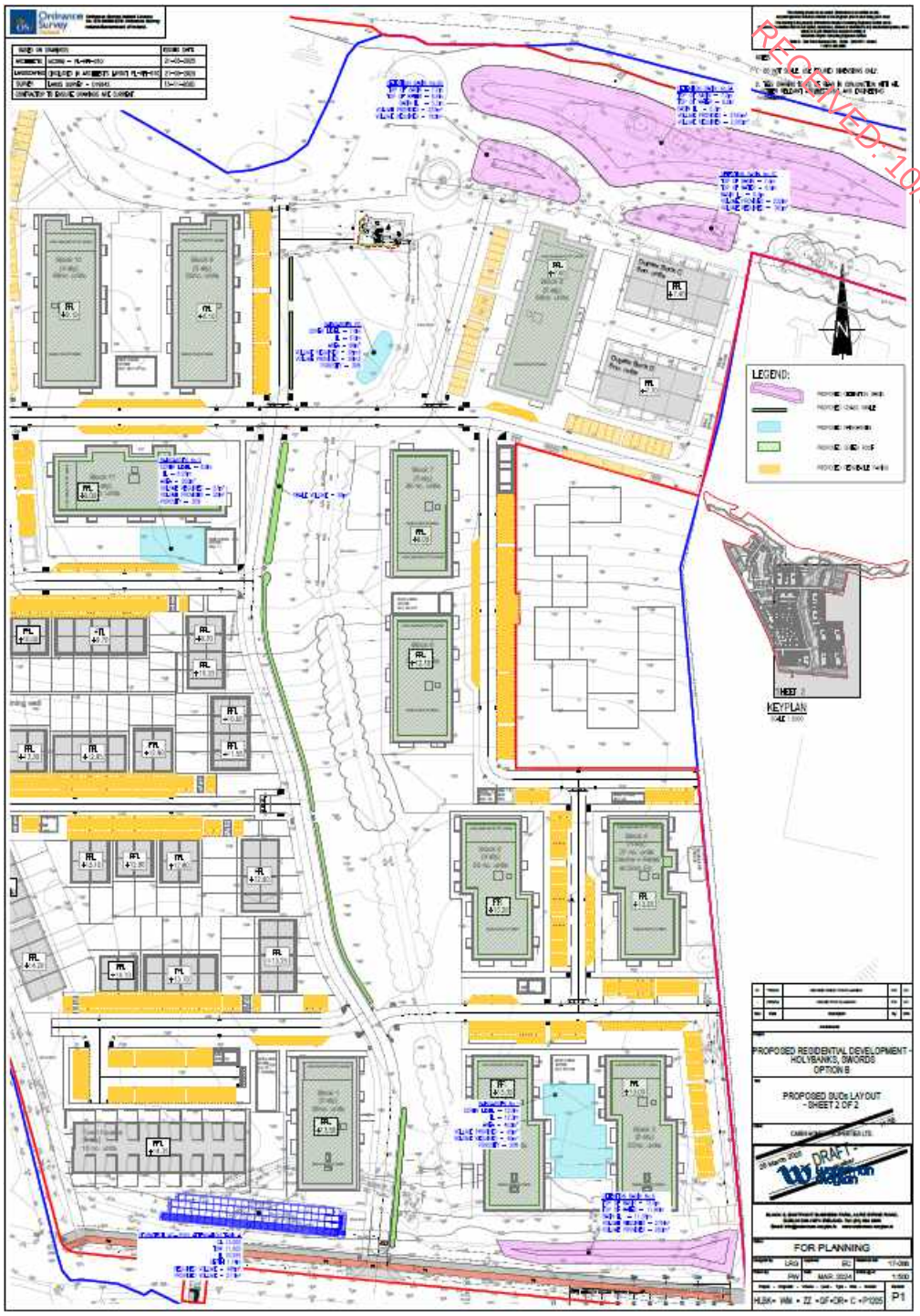

FIGURE 11. SUDS LAYOUT (EASTERN) (DUPLEX – OPTION A) (DRG NO. P1205, WATERMAN MOYLAN 2025).

2 LEGISLATIVE AND POLICY CONTEXT

2.1 Legislative Background

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011).

It is the responsibility of each Member State to designate SPAs and SACs, both of which will form part of the Natura 2000 Network, a network of protected sites throughout the European Community. These designated sites are referred to as "Natura 2000 sites" or "European sites". SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the sites; from these the conservation objectives of the site are derived.

An AA is a required assessment to determine the likelihood of significant effects, based on best scientific knowledge, of any plans or projects on European sites. A screening for AA determines whether a plan or project, either alone or in combination with other plans and projects, is likely to have significant effects on a European site, in view of its conservation objectives.

This AA Screening has been undertaken to determine the potential for significant effects on relevant European sites. The purpose of this assessment is to determine, the appropriateness, or otherwise, of the Proposed Development in the context of the conservation objectives of such sites.

2.1.1 Legislative Context

The obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended ("the 2000 Act"), and in particular Section 177U and Section 177V thereof. The relevant provisions of Section 177U in relation to AA screening have been set out below:

"***177U.—*** *(1) A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*

(2)…

(3)…

(4) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development,

individually or in combination with other plans or projects, will have a significant effect on a European site.

(5) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is not required if it can be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site."

An Appropriate Assessment is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a European site. Paragraph 3 states that:

"*6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site, in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

According to the ruling delivered in open court in Luxembourg on 15th June 2023 regarding the interpretation of Article 6(3) of Directive 92/43, the Article must be interpreted as meaning that:

"In order to determine whether it is necessary to carry out an appropriate assessment of the implications of a plan or project for a site, account may be taken of the features of that plan or project which involve the removal of contaminants and which therefore may have the effect of reducing the harmful effects of the plan or project on that site, where those features have been incorporated into that plan or project as standard features, inherent in such a plan or project, irrespective of any effect on the site".

As such, standardised embedded mitigation (such as the use of Sustainable Drainage Systems (SuDS) in large-scale residential developments), that are incorporated into the design of a proposal or project and which may result in a reduction of effects impacting European sites, but where the primary reason of the embedded mitigation is not to protect a European site, are permitted for consideration during the undertaking of AA.

2.2 Policy Context

2.2.1 Fingal Development Plan

Policies and objectives of the Fingal Development Plan 2023 – 2029 that are of relevance to this Screening Report are outlined below:

- **Policy GINHP5**: "*Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the*

maintenance of landscape character including historic landscape character and the protection and enhancement of archaeological and heritage landscapes."

- **Objective GINHO2:** "*Reduce fragmentation and enhance the resilience of Fingal's green infrastructure network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider green infrastructure network."*
- **Policy GINHP12:** "*Protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, and Refuges for Fauna."*
- **Objective GINHO27:** *"Support the National Parks and Wildlife Service, in the maintenance and achievement of favourable conservation status for the habitats and species in Fingal by taking full account of the requirements of the Habitats and Birds Directives, in the performance of its functions."*
- **Objective GINHO28:** *"Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats."*
- **Policy GINHP17:** *"Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the lifetime of this Plan."*
- **Objective GINHO35:** *"In accordance with Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities 2010, any plans or projects that are likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, are subject to a screening for Appropriate Assessment unless they are directly connected with or necessary to the management of a Natura 2000 site.*
- **Objective GINHO79:** *"Ensure that there is appropriate public access to the coast including the provision of coastal walkways and cycleways, while taking full account of the need to conserve and enhance the natural and cultural heritage of the coast and the need to avoid significant adverse impacts on European Sites and species protected by law, through Screening for Appropriate Assessment, and examine the designation of traditional walking routes thereto as public rights of way."*

2.2.2 Fingal County Biodiversity Action Plan

Fingal County Biodiversity Action Plan (2023-2030) is set out to protect and improve biodiversity through six topics:

- Delivery of the Ecological Network across Fingal;
- Building for Biodiversity;
- Climate change adaption and mitigation;
- Agri environment schemes and rewilding;
- Research & monitoring; and

- Raising awareness.

Note that the BAP is still in the consultation phase, and only a draft version has been made available online.

2.3 Stages of Appropriate Assessment

This AA Screening Report (the 'Screening Report') has been prepared by Enviroguide Consulting. It considers whether the Proposed Development is likely to have a significant effect on a European site and whether a Stage 2 AA is required.

The AA process is a four-stage process. Each stage requires different considerations, assessments and tests to ultimately arrive at the relevant conclusion for each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages of an AA, can be summarised as follows:

- **Stage 1: *Screening***. The Screening for AA considers whether a plan or project is directly connected to or necessary for the management of a European site, or whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.
- **Stage 2: *Natura Impact Statement (NIS).*** Where Stage 1 determines that significant effects are likely, uncertain or unknown, the preparation of a NIS is required. The NIS must include a scientific examination of evidence and data to classify potential impacts on any European site(s) in view of their conservation objectives in the absence of mitigation. The NIS will identify appropriate mitigation to remove the potential for likely significant adverse effects on any European site(s). If the competent authority determines that the plan or project would have an adverse effect on the integrity of any European site(s) despite mitigation, it can only grant consent after proceeding through stages 3 and 4.
- **Stage 3: *Assessment of alternative solutions***. If the outcome of Stage 2 is negative i.e., adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.
- **Stage 4: *Assessment where no alternative solutions exist and where adverse impacts remain***. The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a European site, where no less damaging solution exists.

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First the project should aim to avoid any negative effects on European sites by identifying possible effects early in the planning stage and designing the project to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, a refusal for planning permission may be recommended. In this case, the project will generally only be considered where no alternative solutions are identified and the project is required for IROPI, or, in the

case of priority habitats, considerations of health or safety, or beneficial consequences of primary importance for the environment or to other IROPI. Then compensation measures are required for any remaining adverse effects.

3 AA SCREENING METHODOLOGY

3.1 Guidance

This Screening Report has been undertaken in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019);
- *Assessment of plans and projects in relation to Natura 2000 sites - Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* Brussels, 28.9.2021 C (European Commission, 2021); and
- *Appropriate Assessment Screening for Development Management, OPR Practice Note PN01, Office of the Planning Regulator March 2021.*

3.2 Screening Steps

Screening for AA involves the following steps:

- Establish whether the plan or project is directly connected with or necessary for the management of a European site;
- Description of the baseline existing environment at the Site of the Proposed Development;
- Identification of relevant European site(s) potentially affected;
- Identification and description of potential effects on the relevant European site(s);
- Assessment of the likely significance of the effects identified on the relevant European site(s);
- Description and characterisation of other projects or plans that in combination with the Proposed Development have the potential for having significant effects on the European site; and
- Exclusion of sites where it can be objectively concluded that there will be no significant effects.

It should be noted that any targeted ecological mitigation measures and/or measures intended or included for the purposes of avoiding adverse effects arising as a result of the Proposed Development on any European site **have not been considered** as part of this Screening Report.

3.3 Desk Study

A desktop study was carried out on the 23rd of February 2024 to collate and review available information, datasets and documentation sources relevant for the completion of this Screening Report. The desktop study relied on the following sources:

- Information on the network of European Sites, boundaries, QIs and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at *www.npws.ie*;
- Text summaries of the relevant European sites taken from the respective Standard Data Forms (available at *https://natura2000.eea.europa.eu/*) and Site Synopses (available at *www.npws.ie*);
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.*gis.epa.ie*;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at *www.gsi.ie*;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland; and
- Information on the existence of permitted developments, or developments awaiting decision, in the vicinity of the Proposed Development from the Fingal County Council online planning database (fingalcoco.maps) and the National Planning Database (DHLGH, 2024).

For a complete list of the documents consulted as part of this assessment, see *Section 6 References*.

3.4 Field surveys

A range of field surveys have been carried out at the Site to date. These, as well as further surveys yet to be scheduled are summarised in Table 1.

TABLE 1. FIELD SURVEYS UNDERTAKEN AT THE PROPOSED DEVELOPMENT SITE.

Survey	Surveyor	Dates
Habitat mapping to Fossitt (2000) Level 3 of all habitats at the Site	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Preliminary fauna survey assessing the suitability of the habitats for and searching for signs of mammals, birds, amphibians, reptiles and rare or protected invertebrates	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Invasive Flora Survey	YM, SH	9th of June 2023 19th of July 2023

Survey	Surveyor	Dates
	EK	1st of August 2024
Preliminary Flora Survey	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Breeding Bird Surveys	BMC	9th of August 2023 17th of August 2023 25th of August 2023 8th of May 2024 12th of June 2024 8th of August 2024
Wintering Bird Surveys	BMC	6th of November 2023 9th of January 2024 19th of January 2024 1st of February 2024
Pre-commencement Mammal Survey	Unassigned	TBC
Amphibian Survey (if required)	Unassigned	TBC

3.5 Identification of Relevant European sites

The Zone of Influence (ZOI) for a project is the area over which ecological features may be affected by changes as a result of a development and associated activities. This is likely to extend beyond the development site, for example where there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). Furthermore, ZOI in relation to European sites is described as follows in the 'OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management' (OPR, 2021):

> "*The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances (such as 15 km).*"

Thus, to identify the European sites that potentially lie within the ZOI of the Proposed Development, a Source-Path-Receptor (S-P-R) method was adopted, as described in OPR PN01 (OPR 2021). This note was published to provide guidance on screening for AA during the planning process, and although it focuses on the approach a planning authority should take in screening for AA, the methodology is also readily applied in the preparation of Screening Reports such as this.

The relevant European sites were identified based on the following:

- Identification of potential sources of effects based on the Proposed Development description and details, including changes to potentially suitable ex-situ habitats at the Site (i.e., habitats utilised by SCI bird species outside of their designated SPAs);

- Use of up-to-date GIS spatial datasets for European designated sites and water catchments – downloaded from the NPWS website (*www.npws.ie*) and the EPA website (*www.epa.ie*) to identify European sites which could potentially be affected by the Proposed Development; and
- Identification of potential pathways between the Site of the Proposed Development and any European sites within the ZOI of any of the identified sources of effects:
    - The catchment data were used to establish or discount potential hydrological connectivity between the Proposed Development and any European sites.
    - Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any European sites.
    - Air and land connectivity assessed based on Proposed Development details and proximity to European sites.
    - Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.
- Defining the likely ZOI based on the identified sources of effects and potential pathways between the Proposed Development and any European sites.

3.6 Assessment of Significant Effects

The conservation objectives of the European sites identified to lie within the ZOI were reviewed and assessed in order to establish whether the construction and operation of the Proposed Development has the potential to have a negative impact on any of the QIs and/or conservation objectives listed for the site.

The assessment framework is taken from the best practice guidelines issued by the European Commission, i.e., "*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*".

The potential for significant effects that may arise from the Proposed Development was considered through the use of key indicators:

- Habitat loss or alteration.
- Habitat/species fragmentation.
- Disturbance and/or displacement of species.
- Changes in population density.
- Changes in water quality and resource.

In addition, information pertaining to the conservation objectives of the European sites, the ecology of the designated habitats and species and known or perceived sensitivities of the habitats and species were considered.

3.7 Limitations

Breeding bird surveys took place in the month of August 2023. This month is late in the breeding bird season making it difficult to determine whether or not breeding was taking place by the bird species present. Breeding will have been completed by many bird species by the month of August.

As a result of the above, a precautionary approach has been adopted with regard to breeding birds using the Site.

4 STAGE 1 SCREENING ASSESSMENT

4.1 Existing Environment

4.1.1 Desk Study Results

4.1.1.1 Hydrology, Geology and Hydrogeology

The Site is located in the Nanny-Delvin catchment (catchment I.D 08) and in the Broadmeadow_SC_010 sub-catchment (sub-catchment I.D 08_3) (EPA, 2024).

The Proposed Site is almost completely enveloped by nearby watercourses namely, the Broadmeadow River to the north, an unnamed 2nd order stream traversing the west of the Site and the Balheary Demense Stream bordering the Site to the south, all of which flow into the Broadmeadow River with the unnamed stream doing so directly while the Balheary Demense Stream flows firstly via the Ward River. The Ward River is located approximately 168m east of the Site (EPA, 2024).

The Broadmeadow River as well as the unnamed 2nd order stream are listed within the Broadmeadow_040 (EU Code: IE_EA_08B020800) waterbodies group while the Balheary Demense Stream is listed within the Ward River_040 (IE_EA_08W010610) waterbodies group. The Broadmeadow_040 and Ward River_040 groups are listed as having a 'moderate' WFD status (2016-2021) and are both listed as being 'at risk' of failing to achieve their WFD objectives (EPA, 2024).

There are 2 relevant EPA water monitoring stations located near the Site. The first is located adjacent to the Site's boundary to the northeast (downstream), at the Balheary Road bridge (stn code: RS08B020800). This station measured a 'moderate' (3-4) q-value score for the 2020 survey period. The second station is located 250m south of the Site's boundary (upstream) at the Scotchstone bridge (RS08W010610) and achieved results paralleling the first water monitoring station site; a 'moderate' (3-4) q-value score for the 2020 survey period (EPA, 2024).

The Broadmeadow_040 waterbodies group recorded a downwards trend in total ammonia and ortho-phosphate parameters for the 2013-2018 survey period while the opposite was recorded for the Ward River_040 waterbodies group for the same period; an upwards trend in total ammonia and ortho-phosphate parameters (EPA, 2024).

The Site is located approximately 700m west of the Broadmeadow water (IE_EA_060_0100) transitional waterbody in which the aforementioned Broadmeadow and Ward Rivers drain. The Broadmeadow Water transitional waterbody achieved a 'moderate' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

Beyond the Broadmeadow Water transitional waterbody at the far side of the Malahide train viaduct is the Malahide Bay (IE_EA_060_0000) coastal waterbody located approximately 4.3km from the Site to the east. This waterbody has a 'moderate' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

The Malahide Bay coastal waterbody empties into the Northwestern Irish Sea (IE_EA_020_0000) coastal waterbody approximately 5.7km east of the Site. This waterbody

has a 'good' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

TABLE 2. EPA MONITORING STATIONS AND ASSIGNED Q VALUES

EPA Monitoring Station name	Station Code	Location from Site	Distance from Site	Assigned Q value
Br nr Waterworks	RS08B020800	Northeast downstream	Adjacent	3-4 'Moderate'
Br d/s Scotchstone Br	RS08W010610	East upstream	0.7km	3-4 'Moderate'

The Site of the Proposed Development is situated on the Swords (IE_EA_G_011) groundwater body. The bedrock aquifer identified beneath the Site is mapped as 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones' (GSI, 2024).

The Groundwater Vulnerability Rating assigned to groundwater beneath the Site can be split up roughly into 3 strips of land, all of which run from northwest to southeast. The southernmost and largest of these strips of land is rated as having a 'moderate' groundwater vulnerability. Moving towards the north and traversing roughly the centre of the Site is a strip of land rated as having a 'low' groundwater vulnerability. The final and northernmost of these strips of land is rated as having a 'high' groundwater vulnerability. The 'low' and 'high' rated strips of land mentioned secondly and thirdly are roughly the same size in surface area (GSI, 2024).

The Site is divided between a number of different soil types. Firstly, to the far south of the Site and running roughly along the southern redline boundary is an area of "mineral alluvium". The centre-west of the Site is made up of an area of 'Grey Brown Podzolics, Brown Earths(medium-high base status)' while the centre-east of the Site is made up of an area of 'made' soil. Proceeding northwards from the centre of the Site, there is a narrow strip of 'Renzinas, Lithosols'. Finally, running roughly parallel to the northern boundary of the Site is another area of 'Mineral alluvium' running in a northwestern-southeastern trend. (GSI, 2024).

The quaternary sediments beneath the majority of the south of the Site are made up of 'urban' sediments. The centre-west of the Site is made up of an area of 'Till derived from limestones'. Moving northwards, there is a strip of 'Gravels derived from Limestones' near to the north of the Site running from northwest to southeast. At the northern boundary of the Site, there is a strip of 'Alluvium' and similar to the previously mentioned quaternary sediments, runs in a northwestern-southeastern trend (GSI, 2024).

The Waterbody Status for river, groundwater, transitional and coastal water bodies relevant to the Site as recorded by the EPA (2022) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Table 3.

TABLE 3. WFD RISK AND WATER BODY STATUS

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Surface Water Bodies						

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Broadmeadow River	IE_EA_08B020800	North	0	Moderate	At risk	Adjacent to and downstream of the Site.
Unnamed Stream (2nd order)	IE_EA_08B020800	Within	0	Moderate	At risk	Within the Site.
Balheary Demense Stream	IE_EA_08W010610	South	0	Moderate	At risk	Adjacent to and downstream of the Site.
Ward River	IE_EA_08W010610	South	0.17	Moderate	At risk	Downstream of the Balheary Demense Stream. Upstream of the Broadmeadow River.
Transitional Waterbodies						
Broadmeadow Water	IE_EA_060_0100	East	0.7	Moderate	At risk	Downstream of the Broadmeadow River.
Coastal Waterbodies						
Malahide Bay	IE_EA_060_0000	East	4.3	Moderate	At risk	Broadmeadow Water discharges to Malahide Bay.
Northwestern Irish Sea	IE_EA_020_0000	East	5.7	Good	At risk	Malahide Bay discharges to the Northwestern Irish Sea.
Groundwater Bodies						
Swords Groundwater Body	IE_EA_G_011	N/A	N/A	Good	Not at risk	Underlying groundwater-body.

4.1.2 Relevant Field Survey results

4.1.2.1 Habitats & Flora

A variety of habitats was recorded at the Site, ranging from dry meadows (GS2) to mixed broadleaved woodland (WD1). Hedgerows (WL1) formed the field margins along with drainage ditches with varying water levels, noted to be generally low. No rare or protected habitat types were recorded, but pyramidal orchids (*Anacamptis pyramidalis*) and bee orchids (*Ophrys apifera)* were observed in relatively high abundance near the main pedestrian path crossing the larger of the meadow fields at the northern half of the Site. No invasive flora listed on Schedule III of SI 477/2011 were observed. However, two species listed as 'Medium' impact invasives (Kelly et al. 2013) were recorded across the Site, namely butterfly bush (*Buddleja davidii)* and Sycamore (*Acer pseudoplatanus*). The stands of these species varied in maturity and extent across the Site, with the majority of it recorded within the eastern area of the northern woodland.

4.1.2.2 Fauna

4.1.2.2.1 Birds

4.1.2.2.1.1 Breeding Bird Survey 2023

The breeding bird surveys commenced on the mornings of the 9th of August, 17th of August and 25th of August 2023 at the Site near Holybanks, Swords, Co. Dublin. Transects were done through the site to record all the present species. A final zigzag walk through the site was done at the end of the survey to ensure no additional species were missed. A total of 37 no. species were recorded between the three breeding bird Surveys.

Two red-listed species were recorded (grey wagtail (*Motacilla Cinerea*) and stock dove (*Columba Oenas*)). However, the stock dove records related purely to flyover birds and weren't breeding on the Site. Grey wagtail are possibly breeding on the river at the north of the Site.

It was difficult to confirm breeding for many species due to the slightly later date that the surveys were undertaken. The surveys give a good representation of the species that would have been present earlier in the summer. Species such as spotted flycatcher (*Muscicapa Striata*) and whitethroat (*Sylvia Communis*) were likely migrants rather than breeding species.

4.1.2.2.1.2 Breeding Bird Survey 2024

The breeding bird surveys commenced on the mornings of the 8th of May, 12th of June and 8th of August 2024 at the Site near Holybanks, Swords, Co. Dublin. Transects were done through the site to record all the present species. A final zigzag walk through the site was done at the end of the survey to ensure no additional species were missed. **37** species were recorded between the three Breeding Bird Surveys.

One red-listed species was recorded (Swift (*Apus apus*)). However, due to the lack of suitable breeding habitat on the Site, Swifts were assessed as currently not breeding at the Site, instead using the skies above the Site as a foraging area.

4.1.2.2.1.3 Winter Bird Survey

Transects were done through the site to record all the species that were present. A final zig-zag walk through the site was done at the end of the survey to ensure no additional species were missed. 41 species were recorded across the four winter bird surveys carried out to date on 6th of November 2023, 9th of January 2024, 19th of January 2024 and 1st of February 2024.

Four red-listed species were recorded (meadow pipit (*Anthus pratensis*), grey wagtail (*Motacilla Cinerea*), oystercatcher (*Haematopus Ostralegus*) and snipe (*Gallinago gallinago*)). Meadow pipits were wintering in decent numbers with at least ten present on several dates. One snipe was flushed from the pool at the southern end of the Site on one date. Oystercatchers flew over the Site regularly but weren't using the Site as a feeding ground and instead utilized the nearby football pitches. Grey wagtails were seen feeding in the river on several occasions.

4.1.2.2.2 Mammals

The fields and woodland at the Site were noted to be utilised by recreational walkers, both with and without dogs, as well as groups of children and young people from local schools. As such, it is difficult to determine whether some of the less trodden paths recorded at the Site, particularly along the hedgerows, originated from wild mammal use or from recreational

activities and/or dogs. Due to the high level of vegetation cover, it is likely that signs of mammals, such as hairs, scat and prints, would have been missed during the walkover survey. However, the habitats at the Site and particularly the woodland habitat along the river corridor are considered suitable and likely to support a variety of mammals, such as badger (*Meles meles*), pine marten (*Martes martes*) and red squirrel (*Sqiurus vulgaris*). Furthermore, otter (Lutra lutra) may commute and forage along the Broadmeadow River and also utilise the woodland habitats for shelter. In addition, other small mammals such as pygmy shrew (*Sorex minutus*) and hedgehog (*Erinaceous europaeus*) are likely to be present within most of the habitats present at the Site.

4.1.2.3 Other Fauna

Suitable habitats were recorded for common lizard (*Lacerta vivipara*) among the fields and field margins. Additionally, the wetter sections of the drainage ditches may support amphibians, particularly frog (*Rana temporaria*) at the Site. The level of vegetation during the walkover survey was limiting to the observation potential of both of these species. The level of vegetation during the walkover survey was limiting to the observation potential of both of these species A precautionary approach has been adopted as a result of the survey limitations.

4.2 Identification of Relevant European Sites

4.2.1 Potential Sources of Impacts

The Proposed Development is not directly connected with or necessary to the management of European sites. However, the following elements of the Proposed Development were identified and assessed for their potential to cause likely significant effects on European sites.

Construction Phase (*Estimated duration:* 4 years)

- Uncontrolled releases of silt, sediments and/or other pollutants to air due to earthworks;
- Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies or surface water network;
- Surface water run-off containing silt, sediments and/or other pollutants that discharge into the local groundwater;
- Waste generation during the Construction Phase comprising soils and construction wastes;
- Increased noise, dust and/or vibrations as a result of construction activity;
- Increased lighting in the vicinity as a result of construction activity; and
- Increased human presence and activity as a result of construction activity.

Operational Phase *(Estimated duration: Indefinite)*

- Surface water drainage from the Site of the Proposed Development;
- Foul water from the Proposed Development;
- Increased lighting at the Site and in the vicinity emitted from the Proposed Development; and
- Increased human presence and activity at the Site and in the vicinity as a result of the Proposed Development.

4.2.2 Potential Pathways to European Sites

For the above listed potential sources of effects to have the potential to cause likely significant effects on any European site, a pathway between the source of potential effects (i.e. the Site of the Proposed Development) and the receptor is required. Potential impact pathways are discussed in the following sections in the context of the identified impact sources as identified in section 4.2.1.

4.2.2.1 Direct Pathways

4.2.2.1.1 Hydrological pathways

During Construction phase, the Site has the potential to produce a source of contaminated surface water run-off via a number of different methods. These sources of pollution may include the following:

- Siltation from earthworks and machinery traversing the Site.
- Accidental spillages of chemicals (i.e. bursting of hydraulic lines).

During a rainfall event, sources of contamination may be washed from Site to the nearby Broadmeadow Water which borders the northern section of the Site. This source of pollution has the potential to use the Broadmeadow Water as a pathway and travel the short distance to the **Malahide Estuary SAC (000205)** (960m hydrologically to the east) and the **Malahide Estuary SPA (004025)** (1.34km hydrologically to the east). Therefore, it has been determined that a source-pathway-receptor connection may be established during Site works if impacts are unmitigated and the Proposed Development has the potential to have significant effects on the nearby Natura 2000 sites of **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** by way of a hydrological connection during Construction phase. This will be further examined in section 4.3 Assessment of Likely Significant Effects below.

During Operational phase, the Site may still have the potential to impact the downstream **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)**, but this may be more limited due to a number of factors;

- There will be various types of SuDS features installed including permeable paving, green roofs, grass swales and detention basins all of which will slow/prevent the release of surface water from Site to the nearby Broadmeadow Water by percolating surface water on Site reducing the need for external drainage. The detention basins will also act as settlement tanks, further allowing any siltation/suspended solids to drop out before the outfall to the Broadmeadow Water.
- There will be only negligible sources of pollution compared to the Construction phase; most of the surface water run-off arising on Site during Operational phase will be clean rainwater only.

Due to the above points, it has been determined that the Site will have no significant effects on the nearby Natura 2000 sites of **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** during the Operational phase of the Proposed Development.

4.2.2.1.2 Hydrogeological pathways

During Construction phase, the Site of the Proposed Development will undergo substantial earthworks in order to provide foundations for the dwelling structures as well as for the landscaping of the Site. This earthwork may strip a substantial portion of topsoil from the ground leaving the soil vulnerable to pollution sources. These may include, as with the above Hydrological pathways section, sources such as siltation as well as accidental spillages of chemicals which may seep into the underlying aquifer.

The Site is described as having 3 different groundwater vulnerability statuses, with the land to the north of the Site having a 'high' vulnerability, the land in the centre of the Site having 'low' vulnerability and the land to the south of the Site having 'moderate' vulnerability.

The local groundwater summary of initial characterisation is extracted as follows (Swords GWB summary of initial characterisation, GSI): "*The general groundwater flow direction in this aquifer is towards the coast and also towards the overlying rivers. This aquifer is not expected to maintain regional groundwater flow paths. Groundwater circulation from recharge to discharge points will more commonly take place over a distance of less than a kilometre. The majority of groundwater flow will be a rapid flow in to upper weathered zone but flow in conduits is commonly recorded at depths of 30 to 50 m b.g.l. The aquifer is not considered to have any primary porosity and flow will be through fractures, some of which will have been enlarged by karstification and dolomitisation. The fissured nature and the moderate permeability of the bedrock close to the surface imply that water will move at high velocities.*"

The Proposed Development is made up of 3 groundwater vulnerability ratings including 'low', 'moderate' and 'high'. The area of 'high' vulnerability is located to the north of the Site, near to the Broadmeadow water, where earthworks will be minimal and where no Proposed buildings will be located. The rest of the Site's land, predominantly where the buildings are to be located, has statuses of only 'low' and 'moderate' vulnerability ratings. This indicates that it is unlikely that source pollution on site will have a significant effect on the underlying aquifer.

The local GWB summary of initial characterisation explains that groundwater circulation from recharge to discharge points will take place over the distance of roughly a kilometre. Although the nearest part of the Site's red-line boundary is approximately 680m from the nearest Natura 2000 site of the **Malahide Estuary SAC (000205)**, the majority of the works will take place at a remove of 990m from the Proposed Development which indicates that the majority of groundwater arising from Site will have discharged within this 990m buffer.

It should also be noted that the Dublin GWB eclipses much of the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** from the Site's aspect, effectively blocking off portions of the Natura 2000 sites from a potential hydrogeological pathway arising from the Proposed Site.

However, surface water on Site may percolate to the underlying groundwater and flow to the nearby Broadmeadow Water (adjacent to the north of the Site) and/or the Ward River (530m east of the Site) during Construction phase, due to the proximity of these waterways to the Site. This indicates that there is a potential for a hydrogeological pathway arising from the Proposed Development during Construction phase.

There are no foreseen significant effects arising from the Site during Operational phase. This is due to the lack of sources of pollution as well as the buffer separating the surface and the underlying groundwater body being reinstated.

Concluding the above statements, the Proposed Development may have an effect on the nearby Natura 2000 sites of **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** by way of a hydrogeological pathway.

During Operational phase, the same points as above apply where;

- The groundwater is mostly only 'moderately' vulnerable to potential source pollution arising on Site.
- There is a 990m buffer between the main built portion of the Proposed Development.
- Dublin GWB effectively 'blocks off' large portions of the nearby Natura 2000 sites.

The soil buffers will be reinstated during Operational phase further reducing the grounds vulnerability to source pollution arising on Site.

Similar to the hydrological pathway section, there will be a negligible source of pollution during the Operational phase also, in effect eliminating any source within the source-pathway-receptor system.

Due to the above statements, it has been determined that the Site will have no significant effects on the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** by way of a hydrogeological pathway during Construction and Operational phases.

4.2.2.1.3 Air and land pathways

During the Construction phase of the Proposed Development, there is the potential for several air and land pathways to arise.

These include:

- An increase in dust and exhaust fumes due to machinery such as tippers and excavators being utilized on Site as well as the soil being bare and susceptible to drying during earthworks.
- Earth waste piles drying out and causing dust to be carried by the air.
- An increase in noise and vibrations caused by the machines working on Site.
- An increase of humans and anthropogenic impacts on Site.

During Operational phase of the Proposed Development, there is the possibility for a number of impacts to arise which may include:

- An increase in human activity and noise on Site.
- An increase in lighting as a result of the Proposed Development.

However, due to the distance between the Site and the nearest Natura 2000 sites of **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)**, it has been determined that the Site will have no significant effects on these Natura 2000 sites.

No potential land or air pathways were identified between the Proposed Development Site, and any European site. Construction-related disturbance and displacement of fauna species could potentially occur within the vicinity of the Proposed Development. For mammal species

such as Otter, disturbance effects would not be expected to extend beyond 150m[1]. For birds, disturbance effects would not be expected to extend beyond a distance of c. 300m, as noise levels associated with general construction activities would attenuate to close to background levels at that distance[2]. There are no European sites within the disturbance ZoI; the nearest European site to the proposed development is c. 680m away and 990m from where the majority of works are taking place. This distance is deemed sufficient to exclude any potential for impacts from increased noise, light and anthropogenic disturbance on QI and SCI species.

According to the Institute of Air Quality Management (2016) "95% of dust particles from mineral workings have a relatively high mass and generally deposit within 100m of the point of release, with the remainder being deposited within 200 – 500 m of source". The nearest European Site, namely the **Malahide Estuary SAC (000205)**, is located 680m from the Proposed Development at the closest point. This is a sufficient distance such that no impact from dust or other airborne pollutants will have an effect on this, or any other European sites.

Due to the above statements, it has been determined that the Site will have no significant effects on the nearby Natura 2000 sites of **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)**, by means of air and land pathways.

4.2.2.2 Indirect Pathways

The potential for foul waters generated at the Site of the Proposed Development to reach **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** and cause significant effects, during the Operational Phase, is negligible due to:

- The Swords WwTP has additional hydraulic capacity and organic capacity, as the current annual max hydraulic loading is 56.9% of the peak hydraulic capacity as constructed, and the collected organic load is 85.9% of the organic capacity as constructed (Irish Water, 2023).
- The discharges from the WwTP does not have an observable negative impact on the WFD status of the receiving waterbody (Irish Water, 2023).

In addition, on a precautionary basis, given the proximity of the Site to both the **Malahide Estuary SPA (004025)**, indirect pathways (e.g., disruptions to migratory pathways) were considered in this AA Screening Report. Tall structures such as electrical pylons, wind farms and tall buildings can lead to fatal collisions with commuting bird species. This is particularly true for those species considered to be "poor" fliers, with relatively low manoeuvrability compared to other more agile bird species (see Eirgrid, 2012).

Some of the most at-risk groups (classified as 'medium' and 'high' collision risk species) include wader species; waterfowl such as geese, swan and duck species; and some raptor

[1] This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes (2006) and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (2005)) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by surrounding vegetation and buildings, with the actual ZoI of construction related disturbance likely to be much less in reality.

[2] This is based on the relationship between the noise levels generated by general construction traffic/works (BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1 Noise) and the proximity of those noise levels to birds – as assessed in Cutts, N. Phelps, A. & Burdon, D. (2009) *Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance*, and Wright, M., Goodman, P & Cameron, T. (2010) Exploring Behavioural Responses of Shorebirds to Impulsive Noise. *Wildfowl* (2010) 60: 150–167. At 300m, noise levels are below 60dB or, in most cases, are approaching the 50dB threshold below which no disturbance or displacement effects would arise.

species. Gulls such as black-headed gull, herring gull and lesser black-backed gull are classed as 'low' collision risk species due to their superior manoeuvrability when flying (see Eirgrid, 2012).

4.2.2.2.1 Likelihood of Collision Impacts

From a review of available literature on the subject, bird collisions with man-made structures are common and well documented[3] with migratory passerine species the most prevalent collision victims[4]. Bird collision with buildings is generally associated with reflective material such as windows or large surfaces of glass which create a mirror and appear to show the continuation of the sky or surrounding landscape, an effect that can be exacerbated by lighting.

In addition, the physical location of buildings and structures can influence the likelihood of bird collisions, with structures placed on or near areas regularly used by large numbers of feeding, breeding, or roosting birds, or on local flight path; such as those located between important foraging and roosting areas, can present a higher risk of collision.

The Site in itself is not deemed to represent suitable *ex-situ* feeding/roosting habitat for any such species (Habitats present largely comprise of dry meadows, woodland and hedgerow/treeline/scrub).

However, it should be noted that the Site is located within 1.55km (at its nearest point), of the nearby **Malahide Estuary SPA (004025)**, which is designated for the protection of wetland bird populations.

4.2.2.2.2 Building Appearance

Whilst the design of the facades of the dwellings do include windows, as shown on the elevation drawings prepared (MCORM, 2024) for the Proposed Development no large surfaces of glass are proposed. Rather the overall facades of the proposed buildings are well broken up, with a varied material composition interspersing any reflective areas. These architectural design features provide important visible cues as to the presence and extent of the proposed structures to any commuting/foraging bird species should they be in the vicinity

[3] Banks, R.C (1979). Human related mortality of birds in the United States. U.S. Fish Wildl. Serv. Spec. Sci. Rep. Wildl. 215. 16 pp.

Jenkins, A., Smallie, J.J. and Diamond, M. (2010). Avian collisions with power lines: A global review of causes and mitigation with a South African perspective. Bird Conservation International, 20(03), 263 – 278.

Klem, D. (1990). Collisions between birds and windows: mortality and prevention. Journal of Field Ornithology, 61, 120–128.

Erickson, W.P., Johnson, G.D. and Young, P.D. (2005). A Summary and Comparison of Bird Mortality from Anthropogenic Causes with an Emphasis on Collisions. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. 2005.

Erickson, W. P., G. D. Johnson, M. D. Strickland, D. P. Young, Jr., K. J. Sernka, and R. E. Good. (2001). Avian collisions with wind turbines: A summary of existing studies and comparisons to other sources of avian collision mortality in the United States. National Wind Coordinating Committee, c/o RESOLVE, Inc., Washington, D.C.

[4] Bing G.-C., Choi C.-Y., Nam H.-Y., Park J.-G., Hong G.-P., Sung J.-K., Chae H.-Y & Choi Y.-B. (2012). Causes of mortality in birds at stopover islands. Korean J. Ornithol., 19, 23–31.

Longcore, T. Rich, C., Mineau, P., MacDonald, B., Bert, D.G., Sullivan, L.M., Mutrie, E., et al. (2013). Avian mortality at communication towers in the United States and Canada: which species, how many, and where? Biological Conservation, 158, 410-419.

of the Site. This overall visual heterogeneity of the building facades will be sufficient to further ensure that the risk of bird collisions as a result of the Proposed Development is negligible. These architectural design features are part of the overall design of the Proposed Development and are not considered to represent specific mitigation measures to prevent collisions, however, they will contribute to the overall effect in this regard. It is noted that birds are not deemed to be at any particular risk of collisions with the proposed buildings at the Site.

As a result of the physical appearance of the proposed buildings, it is deemed that birds including any 'at-risk' species, do not have the potential to be impacted by the Proposed Development in terms of collisions and the risk is therefore deemed to be **imperceptible** in the absence of any mitigation.

4.2.2.2.3 Building Height

With respect to SCI birds for the **Malahide Estuary SPA (004025)** within the zone of influence of the Proposed Development, which regularly use or travel over inland areas (i.e. light bellied brent goose, gull species, duck species and a number of waders such as oystercatcher, godwit species or curlew) in Dublin and Fingal County, they navigate the urban environment with built structures daily.

To put some context on some of their avoidance capabilities, in a different setting and for use in collision risk modelling for onshore wind turbines, an avoidance rate of 99.5% is applied for large gull species and an avoidance rate of 99.2% is applied for small gull species (Furness, 2019) , which essentially means that 99.5% and 99.2% of gull flights, respectively, will avoid collision with a moving turbine. For curlew the avoidance rate applied is 98% (SNH, 2018).

The risk of collision is even less with a static, clearly detectable building. The proposed buildings consist of windows, broken up with with a varied material composition interspersing any reflective areas. While the presence of the Proposed Development might alter flight patterns of bird species slightly to avoid the proposed building structures, the risk of collision is extremely low.

The Proposed Development entails the construction of relatively low level residential buildings ranging in height of up to 5 storeys, and as such, the risk of migrating birds colliding with the structure due to its height is deemed to be negligible (Migrating species tend to commute far above this with Swans and Geese flying up to 2500ft (ca.750m) during migration along Irish Coasts (Irish Aviation Authority, 2020)).

It is considered that birds that fly over the Site to commute between feeding grounds at various locations would fly lower than this, however, once the proposed structures are made of visible materials i.e., not entirely comprised of reflective materials such as glass, the birds would simply fly around or over them.

4.2.3 Relevant European sites

A European site will only be at risk from likely significant effects where an S-P-R link exists between the Proposed Development Site and European sites. All of the European sites considered under the S-P-R method are listed in Table 4, with two European sites identified to have a S-P-R link of note to the Proposed Development Site, namely:

- **Malahide Estuary SAC (000205)**
- **Malahide Estuary SPA (004025)**

These sites are highlighted in green in Table 4 below.

TABLE 4. EUROPEAN SITES CONSIDERED WITH THE SOURCE-PATHWAY-RECEPTOR (S-P-R) METHOD TO ESTABLISH NOTABLE LINKS BETWEEN THE SOURCES OF EFFECTS ARISING FROM THE PROPOSED DEVELOPMENT, AND ANY RELEVANT EUROPEAN SITES. THOSE SITES WITH NOTABLE S-P-R LINKS ARE HIGHLIGHTED IN GREEN (IF ANY). QUALIFYING INTERESTS (QIS) TAKEN FROM THE RELEVANT CONSERVATION OBJECTIVES DOCUMENTS (AS REFERENCED) AND/OR THE STANDARD DATA FORMS (EEA, 2023)[5].

Site Name & Site Code	Qualifying Interests (*= priority habitats)	Potential Pathways
Special Areas of Conservation (SAC)		
Malahide Estuary SAC (000205) Linear Distance to Proposed Development: approx. 0.68 km W	**Conservation Objectives Version 1 (NPWS, 2013a)** • Mudflats and sandflats not covered by seawater at low tide [1140] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] • Mediterranean salt meadows (*Juncetalia maritimi*) [1410] • Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Yes – Hydrological connection via the Broadmeadow Water. No other potential pathways identified.
Special Protection Areas (SPAs)		
Malahide Estuary SPA (004025) Linear Distance to Proposed Development: approx. 1.55 km NE	**Conservation Objectives Version 1 (NPWS, 2013b)** • Great Crested Grebe (*Podiceps cristatus*) [A005] • Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] • Shelduck (*Tadorna tadorna*) [A048] • Pintail (*Anas acuta*) [A054] • Goldeneye (*Bucephala clangula*) [A067] • Red-breasted Merganser (*Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Knot (*Calidris canutus*) [A143] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Redshank (*Tringa totanus*) [A162] • Wetland and Waterbirds [A999]	Yes – Hydrological connection via the Broadmeadow Water.

[5] Where applicable, the full species list included in this table is as per the latest updated information as indicated, so either the Conservation Objectives (CO) document for the site, or the latest Standard Data Form (SDF) (EEA, 2023). For SDF updates, CO are not yet available for the newly added species but are assumed, for the purposes of assessment, to follow the same format as for other feature species.

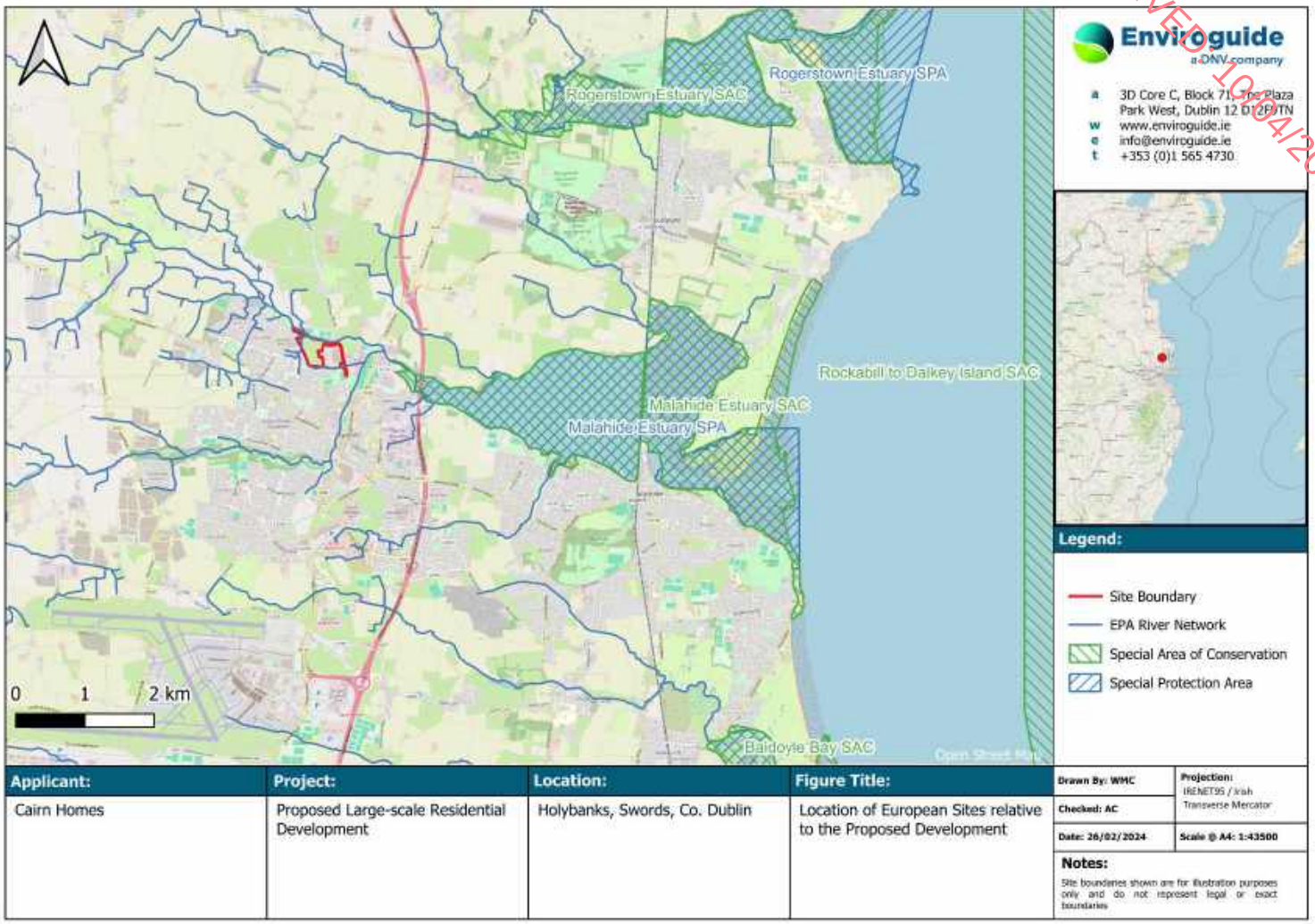

FIGURE 12. LOCATION OF EUROPEAN SITES RELATIVE TO THE PROPOSED DEVELOPMENT.

4.2.3.1 Malahide Estuary SAC

The following descriptions of the Malahide Estuary SAC are extracted from the Site Synopsis (NPWS 2017) for the site:

> "*The outer part of the estuary is mostly cut off from the sea by a large sand spit, known as 'the island'. The outer estuary drains almost completely at low tide, exposing sand and mud flats. There is a large bed of Eelgrass (Dwarf Eelgrass, Zostera noltii, and Narrow-leaved Eelgrass, Z. angustifolia) in the north section of the outer estuary, along with Beaked Tasselweed (Ruppia maritima) and extensive mats of green algae (Enteromorpha spp., Ulva lactuca). Common Cord-grass (Spartina anglica) is also widespread in this sheltered part of the estuary."*

The following description of the Site is extracted from the Conservation Objectives Supporting Document (NPWS 2013c) for the site:

> "*Estuarine sandy mud with Chironomidae and hediste diversicolor community complex. This complex is recorded at Swords where the Ward River and Broad Meadow River enter the Malahide estuary. The sediment is largely that of sandy mud with silt-clay and very fine sand accounting for between 19.6% to 59.7% and 12.4% to 28.4% of the sediment fractions respectively. The remaining fractions range from 0.8% to 12.5% coarse sand, very coarse sand from 0.4% to 5.1%, medium sand from 1.6% to 27.7% and the fine sand fraction from 8.7% to 21.9%. The proportion of gravel recorded is negligible (<1%)*."

4.2.3.1 Malahide Estuary SPA

The following descriptions of the Malahide Estuary SPA are extracted from the Site Synopsis (NPWS 2013d) for the site:

> "*This site is of high importance for wintering waterfowl and supports a particularly good diversity of species. It has internationally important populations of Light-bellied Brent Goose (1,104 individuals or 5% of the all-Ireland total) and Black-tailed Godwit (409 individuals or 2.9% of the all-Ireland total) - figures given here and below are mean peaks for the five winters 1995/96-1999/2000. Furthermore, the site supports nationally important populations of an additional 12 species: Great Crested Grebe (63), Shelduck (439), Pintail (58), Goldeneye (215), Red-breasted Merganser (99), Oystercatcher (1,360), Golden Plover (1,843), Grey Plover (201), Knot (915), Dunlin (1,594), Bar-tailed Godwit (156) and Redshank (581). The high numbers of diving ducks reflects the lagoon-type nature of the inner estuary, and this is one of the few sites in eastern Ireland where substantial numbers of Goldeneye can be found. A range of other species occurs, including Mute Swan (37), Pochard (36), Ringed Plover (86), Lapwing (1,542), Curlew (548), Greenshank (38) and Turnstone (112).*"

The following description of the Site is extracted from the Conservation Objectives Supporting Document (NPWS 2013e) for the site:

> *"Malahide Estuary is situated in north Co. Dublin, between the towns of Malahide and Swords. The estuary is bisected by a railway viaduct, built in the*

1800s, which creates an inner and outer site. The Broadmeadow M1 motorway bridge crosses the inner estuary and covers some saltmarsh habitat. The outer estuary empties almost completely at low tide. The intertidal area is sheltered from the sea by a large sand spit, known as "the Island" which is now mostly converted to golf course. The site also includes a shallow subtidal area at the estuary mouth."

4.2.3.2 Qualifying Interests and Conservation Objectives

The QIs/SCIs and their respective conservation objectives for each of the relevant European site(s) are detailed in Table 5 below and Figure 13.

TABLE 5. QUALIFYING INTERESTS (QIS) / SPECIAL CONSERVATION INTERESTS (SCIS) AND THEIR CONSERVATION OBJECTIVES FOR THE RELEVANT EUROPEAN SITES. THE CONSERVATION STATUS OF EACH QI / SCI WAS SOURCED FROM THE RELEVANT STANDARD DATA FORM(S) (SOURCE: EEA (2024)).

QI / SCI (* = priority habitat)	Conservation Status	Conservation Objective
Malahide Estuary SAC (000205)		
Mudflats and sandflats not covered by seawater at low tide [1140]	Good	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC
Salicornia and other annuals colonising mud and sand [1310]	Good	To maintain the favourable conservation condition of Salicornia and other annuals colonising mud and sand in Malahide Estuary SAC
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	Good	To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Malahide Estuary SAC
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	Poor	To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Malahide Estuary SAC
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]	Poor	To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in Malahide Estuary SAC
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Good	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Malahide Estuary SAC
Malahide Estuary SPA (004025)		
Great Crested Grebe (*Podiceps cristatus*) [A005]	N/A	To maintain the favourable conservation condition of Great Crested Grebe in Malahide Estuary SPA

QI / SCI (* = priority habitat)	Conservation Status	Conservation Objective
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	N/A	To maintain the favourable conservation condition of Light-bellied Brent Goose in Malahide Estuary SPA
Shelduck (*Tadorna tadorna*) [A048]	N/A	To maintain the favourable conservation condition of Shelduck in Malahide Estuary SPA
Pintail (*Anas acuta*) [A054]	N/A	To maintain the favourable conservation condition of Pintail in Malahide Estuary SPA
Goldeneye (*Bucephala clangula*) [A067]	N/A	To maintain the favourable conservation condition of Goldeneye in Malahide Estuary SPA
Red-breasted Merganser (*Mergus serrator*) [A069]	N/A	To maintain the favourable conservation condition of Red-breasted Merganser in Malahide Estuary SPA
Oystercatcher (*Haematopus ostralegus*) [A130]	N/A	To maintain the favourable conservation condition of Oystercatcher in Malahide Estuary SPA
Golden Plover (*Pluvialis apricaria*) [A140]	N/A	To maintain the favourable conservation condition of Golden Plover in Malahide Estuary SPA
Grey Plover (*Pluvialis squatarola*) [A141]	N/A	To maintain the favourable conservation condition of Grey Plover in Malahide Estuary SPA
Knot (*Calidris canutus*) [A143]	N/A	To maintain the favourable conservation condition of Knot in Malahide Estuary SPA
Dunlin (*Calidris alpina*) [A149]	N/A	To maintain the favourable conservation condition of Dunlin in Malahide Estuary SPA
Black-tailed Godwit (*Limosa limosa*) [A156]	N/A	To maintain the favourable conservation condition of Black-tailed Godwit in Malahide Estuary SPA
Bar-tailed Godwit (*Limosa lapponica*) [A157]	N/A	To maintain the favourable conservation condition of Bar-tailed Godwit in Malahide Estuary SPA
Redshank (*Tringa totanus*) [A162]	N/A	To maintain the favourable conservation condition of Redshank in Malahide Estuary SPA
Wetland and Waterbirds [A999]	N/A	To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA

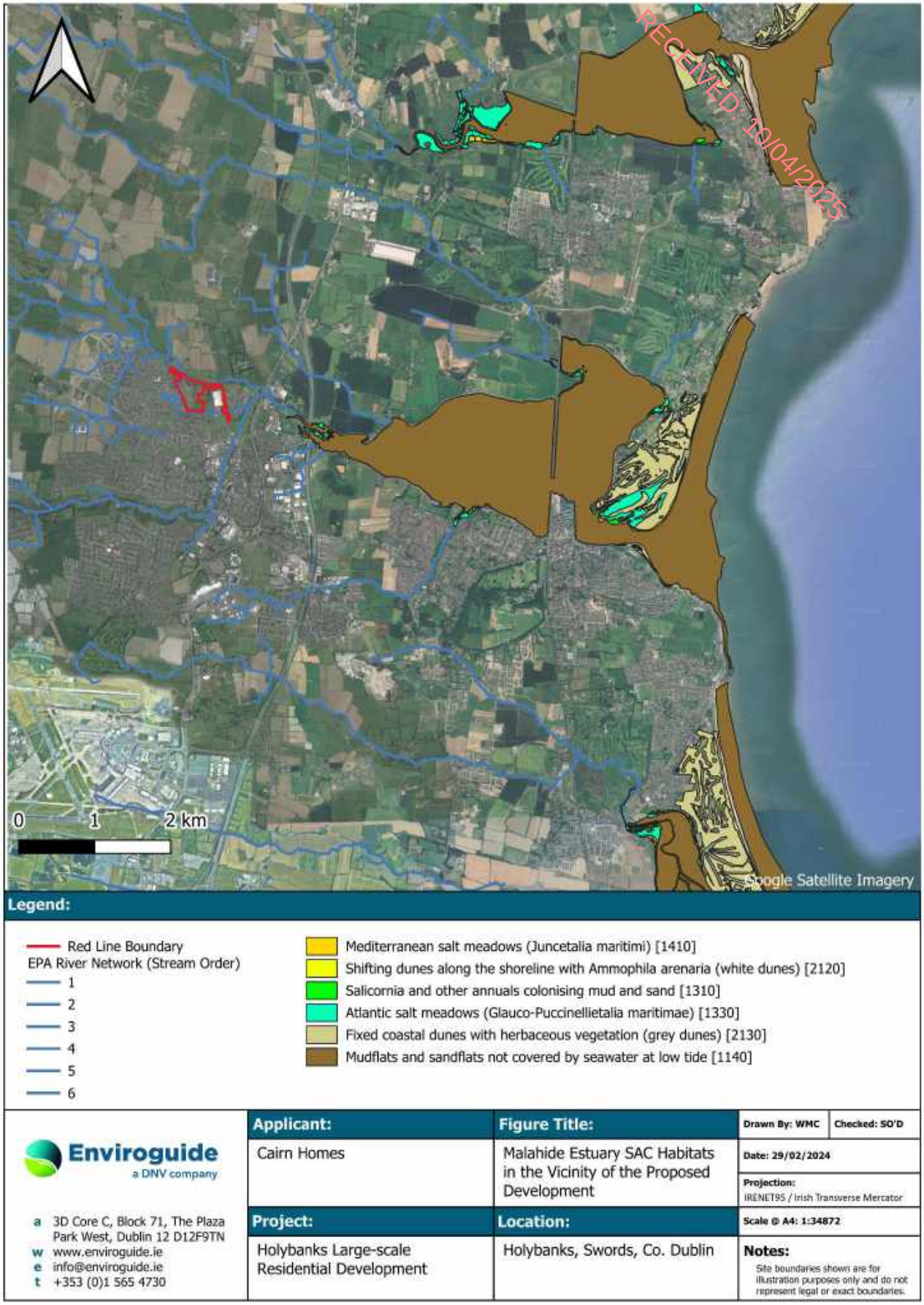

FIGURE 13. MALAHIDE ESTUARY SAC (000205) HABITATS IN THE VICINITY OF THE PROPOSED DEVELOPMENT.

4.3 Assessment of Likely Significant Effects

The following sections discuss the potential for likely significant effects on the relevant European site(s), taking into consideration the QIs, SCIs and SSCOs (where available), and assesses whether the Proposed Development has the capacity to adversely affect the integrity of these European sites. The potential for significant effects that may arise from the Proposed Development was considered through the use of key indicators as detailed in section 3.6.

4.3.1 Habitat Loss and Alteration

As stated in the Hydrological pathways and Hydrogeological pathways sections above, there is a potential source-pathway-receptor link between the Site and the nearby **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** by means of hydrological and hydrogeological pathway. Silt and chemicals have the potential to be washed from the Site if unmitigated and be carried by the Broadmeadow Water a distance of 960m hydrologically. Alternatively, the same silt and chemicals may be transferred to the Natura 2000 sites firstly via hydrogeological pathway which discharges into the nearby Broadmeadow Water and/or Ward River where the pollution may complete its passage to the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** via hydrological pathway. There are a number of habitats listed as Qis for the **Malahide Estuary SAC (000205)** including (see Figure 13):

- Mudflats and sandflats not covered by seawater at low tide [1140]
- *Salicornia* and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]

Two of the listed habitats including Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] have the potential to be affected by a hydrological pathway from the Proposed Site due to proximity. The remainder of these listed habitats will not be affected as they are located at the far side of the Malahide viaduct which is located approximately 4.34km east from the Site which allows the dilution of negative impacts to occur.

Over the extensive Construction time of 4 years, potential siltation and chemicals arising from the Proposed Development have the potential to build up at the nearest section of Mudflats and sandflats not covered by seawater at low tide [1140], though this is foreseen only to be a small section of the habitat due to the scale of Mudflats and sandflats not covered by seawater at low tide [1140] within the **Malahide Estuary SAC (000205)**. Wastewater is listed as a threat to this habitat type, and excessive amounts of siltation and chemicals from the Development may effectively smother the fauna (molluscs (*Macomangulus tenuis, Peringia ulvae*), crustaceans (Crangon crangon, Corophium volutator), polychaetes (e.g. Hediste diversicolor) and oligochaetes (Tubificoides benedii) of this section of this habitat type over an extensive time period (NPWS, 2019).

There is a section of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] located approximately 930m from the Site at the mouth of the Broadmeadow Water. Although not listed as a pressure or a threat, excessive pollution/siltation arising from the Proposed Development may cause habitat loss/alteration to this small section of habitat over the extensive Development period of 4 years.

Loss/alteration of these habitats may cause a loss of foraging habitat for SCI bird species of the **Malahide Estuary SPA (004025)** which will impact on them potentially causing them to travel elsewhere in search of forage.

Due to the above points, it has been determined that the Proposed Site may have a significant effect by way of habitat loss and alteration on **Malahide Estuary SAC** and **Malahide Estuary SPA (004025)** if unmitigated.

4.3.2 Habitat / Species Fragmentation

For the same reasons outlined in the above 4.3.1 Habitat Loss and Alteration section, the Proposed Development may have an impact on habitat fragmentation within the **Malahide Estuary SAC (000205)** by smothering a small section of Mudflats and sandflats not covered by seawater at low tide [1140] near to the mouth of the Broadmeadow Water or potentially impacting on the whole section of the Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], potentially causing the fragmentation of the habitats (see Figure 13).

Although the Development may not directly affect the SCI bird species of the **Malahide Estuary SPA (004025)**, siltation and chemicals arising from Site may have the potential to cause loss, fragment and/or alter the wetland habitats of Mudflats and sandflats not covered by seawater at low tide [1140] and Mudflats and sandflats not covered by seawater at low tide [1140] of the **Malahide Estuary SAC (000205)** which may in turn impact on feeding habitats of SCI bird species causing them to move and look elsewhere for foraging habitat.

Due to the above points, it has been determined that the Proposed Site may have a significant effect by way of habitat/species fragmentation on **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** if unmitigated.

4.3.3 Changes in Water Quality and Resource

Potential hydrological and hydrogeological pathways exists from the Site of the Proposed Development to the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)**. This run-off may include chemicals and siltation arising from works undertaken at the Development.

The nearest QI habitats of the **Malahide Estuary SAC (000205)** include Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]. It is foreseen that significant impacts through changes in water quality and resource may have an effect on Mudflats and sandflats not covered by seawater at low tide [1140] whereas poor water quality is not

listed as a threat or pressure to Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) (NPWS, 2019) (see Figure 13).

Impacts on these habitats as a result changes in water quality may cause a loss of forage to SCI bird species of the **Malahide Estuary SPA (004025)** which will impact on them potentially causing them to travel elsewhere in search of forage.

The waterbody buffer between the Site and the rest of the listed QI habitats of this Natura 2000 site including Mudflats and sandflats not covered by seawater at low tide [1140], *Salicornia* and other annuals colonising mud and sand [1310], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] allows impacts on these habitats to be nullified due to distance and dilution.

Due to the above points, it has been determined that the Proposed Site may have a significant effect by way of changes in water quality/resource on **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** if unmitigated.

4.3.4 Disturbance and / or Displacement of Species

Site works will be carried out approximately 990m west of the **Malahide Estuary SAC (000205)** and further than this again from the **Malahide Estuary SPA (004025)**. There are no QI species listed within **Malahide Estuary SAC (000205)** which may be susceptible to disturbance caused by anthropogenic impacts such as noise, light, vibrations and human activity. SCI bird species listed within the **Malahide Estuary SPA (004025)** do have the potential of being disturbed/displaced by works though this will not occur in this instance due to the sufficient buffer between the area which will be developed and the **Malahide Estuary SPA (004025)** (990m) which will dampen any noise emanating from the Proposed Development as Birds are susceptible to disturbance only within 300m of works.

Due to the above points, it has been determined that the Proposed Site will not have any significant effect by way of disturbance and/or displacement of species on **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** if unmitigated.

4.3.5 Changes in Population Density

There are no foreseen impacts on changes in population density as a result of the Proposed Development. This is due to anthropogenic impacts such as noise, light, vibrations and human activity arising from the Proposed Development being nullified due to the substantial buffer of 990m between the area where works are being carried out and the nearest Natura 2000 site.

4.3.6 Potential for In-combination Effects

4.3.6.1 Existing Planning Permissions

A search of planning applications located within a 500m radius (due to the large-scale of the Development) of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD)

(MyPlan.ie) and Fingal County Council Planning Applications online map. Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the relevant European sites. Long-term developments granted outside of this time period were also considered where applicable.

It is noted that the majority of the few developments within the vicinity of the Site of the Proposed Development are applications granted for infrastructure projects. The larger developments in the vicinity of the Proposed Development are outlined in Table 6:

TABLE 6. GRANTED AND PENDING DEVELOPMENT APPLICATIONS WITHIN 500 M OF THE PROPOSED DEVELOPMENT. LOCATION AND DISTANCE GIVEN IS RELATIVE TO THE PROPOSED DEVELOPMENT.

Planning Reference	Planning Authority	Status	Location
F21A/0476	Fingal CoCo	Granted	Balheary Road, Swords, Co Dublin
Development Description A proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes, proposed vehicular/service access onto Balheary Road; landscaping; boundary treatments; and all associated engineering and site works necessary to facilitate the development. A Natura Impact Statement (NIS) has been prepared and is submitted to the Planning Authority with the application. **Potential for In-combination effects** An NIS has been prepared ensuring measures will be installed to prevent impacts on nearby Natura 2000 sites. This will eradicate the potential for in-combination effects with the Proposed Development.			
F22A/0365	Fingal CoCo	Granted	All in or in the vicinity of the townlands of Mainscourt, Roscall, Richardstown, Gracediew, Brownstown, Magillstown, Skidoo, Dollards, Balheary, Newtown, broadmeadow, Balheary Demesne, Seatown West, Swords Demesne, Mantua, Greenfields, Seatown East.
Development Description The development of grid connection infrastructure to connect the approved solar photovoltaic ('PV') energy development on lands at Mainscourt, Ballyboghill, Co. Dublin under Register Reference F17A/0340, PL06F.249174 to the ESB Mountgorry 38kV Substation, Swords Business Park, Swords, Co. Dublin, comprising the laying of. 9,470 metres of 38kV underground electricity cables in ducts and associated infrastructure substantially under public roads and beneath the Ward River Bridge, Gracedieu Bridge and the Broadmeadow River by means of horizontal directional drilling. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the planning application. **Potential for In-combination effects** An NIS has been prepared ensuring measures will be installed to prevent impacts on nearby Natura 2000 sites. This will eradicate the potential for in-combination effects with the Proposed Development.			

4.3.6.2 Relevant Policies and Plans

The local policies and plans detailed in section 2.2 above were reviewed and considered for possible in-combination effects with the Proposed Development. Each of these plans has undergone AA, and where potential for likely significant effects has

been identified (e.g., in the case of the Fingal Development Plan), an NIS has been prepared which identifies appropriate mitigation. As such, it is considered that the plans and policies listed will not result in in-combination effects with the Proposed Development. The Fingal Development Plan 2023-2029 has directly addressed the protection of European sites and biodiversity through specific objectives. The above listed plans are not being relied upon to rule out potential significant effects on European sites.

TABLE 7. SUMMARY OF IMPACT ASSESSMENT ON EUROPEAN SITES AS A RESULT OF THE PROPOSED DEVELOPMENT

Site	Habitat Loss / Alteration	Habitat or Species Fragmentation	Disturbance and/or Displacement of Species	Changes in Population Density	Changes in Water Quality and/or Resource	In-combination effects	Stage 2 AA Required
SAC							
Malahide Estuary SAC (000205)	Yes	Yes	Yes	Yes	Yes	No	Yes
SPA							
Malahide Estuary SPA (004025)	Yes	Yes	Yes	Yes	Yes	No	Yes

5 APPROPRIATE ASSESSMENT SCREENING CONCLUSION

The Proposed Development at Holybanks, Swords, Co. Dublin has been assessed taking into account:

- The nature, size and location of the proposed works and possible impacts arising from the construction works.
- The QIs and conservation objectives of the European sites
- The potential for in-combination effects arising from other plans and projects.

In conclusion, upon the examination, analysis and evaluation of the relevant information and applying the precautionary principle, it is concluded by the authors of this report that the possibility **cannot be excluded** that the Proposed Development will have a significant effect on any of the European sites listed below:

- **Malahide Estuary SAC (000205)**
- **Malahide Estuary SPA (004025)**

In carrying out this AA screening, mitigation measures have not been taken into account. Standard best practice construction measures which could have the effect of mitigating any effects on any European Sites have similarly not been taken into account.

On the basis of the screening exercise carried out above, it can be concluded, on the basis of the best scientific knowledge available and objective information, that the possibility of any significant effects on the above listed European sites, whether arising from the project itself or in combination with other plans and projects, cannot be excluded in light of the above listed European sites' conversation objectives. Thus, there is a requirement to proceed to Stage 2 of the Appropriate Assessment process; and a NIS has been prepared and accompanies this submission under separate cover.

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Appendix 5.6

Natura Impact Statement

Slight Change

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Natura Impact Statement

PRESENTED TO

Cairn Homes
Proposed Holybanks Residential Development

April 25

DOCUMENT CONTROL SHEET

Client	Cairn Homes
Project Title	Proposed Holybanks Large-scale Residential Development
Document Title	Natura Impact Statement

Revision	Status	Author(s)	Reviewed	Approved	Issue Date
00	Draft for internal review	WMC *Ecologist*	SOB *Ecologist*	-	-
01	Draft for Client Review	WMC *Ecologist*	SOB *Ecologist*	SOD *Principal Ecologist*	22.08.2024
02	Final	WMC *Ecologist*	SOB *Ecologist*	SOD *Principal Ecologist*	22.08.2024
03	Updated Draft for Client	WMC *Ecologist*	SOB *Ecologist*	SOD *Principal Ecologist*	13/01/2025
04	Updated Final	WMC *Ecologist*	SOB *Ecologist*	SOD *Principal Ecologist*	03/04/2025

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If the scope of work includes subsurface investigation such as boreholes, trial pits and laboratory testing of samples collected from the subsurface or other areas of the Site, and environmental or engineering interpretation of such information, attention is drawn to the fact that special risks occur whenever engineering, environmental and related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with best practice and a professional standard of care may fail to detect certain conditions. Laboratory testing results are not independently verified by Enviroguide and have been assumed to be accurate. The environmental, ecological, geological, geotechnical, geochemical and hydrogeological conditions that Enviroguide interprets to exist between sampling points may differ from those that actually exist. Passage of time, natural occurrences and activities on and/or near the Site may substantially alter encountered conditions.

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1 INTRODUCTION

1.1 Background

Enviroguide Consulting was commissioned by Cairn Homes, to prepare an Appropriate Assessment Screening Report in relation to a Proposed Development at Holybanks, Swords, Co. Dublin. The AA Screening Report concluded that a degree of uncertainty exists in whether the Proposed Development could give rise to potentially significant effects on two nearby European sites, namely:

- Malahide Estuary SAC (000205)
- Malahide Estuary SPA (004025)

Therefore, a Natura Impact Statement (NIS) has been prepared for the Proposed Development. The purpose of this NIS report is to provide information for the relevant competent authority to carry out a Stage 2 Appropriate Assessment in respect of the Proposed Development.

This report has been updated in response to point 5 of the RFI (Decision Order No. PF/3148/24), issued by Fingal County Council on the 26th of November 2024, which states the following:

'*It appears from the submitted drawings 'petrol interceptor details' that the outfall of the detention basins in the north of the site is proposed to terminate directly into the Broadmeadow River, however the proposed methodology for same has not been outlined in the NIS or EIAR. The applicant is requested to setback the outfall location from the existing riverbank and naturalise to create a vegetated swale to avoid the need for in-stream works or gabions within the main river channel, in accordance with the objectives (objective GINH043 and GINH044) of the Fingal Development plan 2023-2029, which promotes removal of these structures where they occur and setback of new outfalls. Appropriately detailed design drawings and construction method statements for the surface water outfall shall be provided, and accordingly the AA Screening Report and Natura Impact Statement be reviewed, and revised/updated if necessary, to take account of any other changes to either the design or construction methodology, or the assessment of potential environmental impacts arising as a result of this FI request*'.

1.2 Quality Assurance and Competence

Enviroguide Consulting is a multi-disciplinary consultancy specialising in the areas of the Environment, Waste Management and Planning. All Enviroguide consultants carry scientific or engineering qualifications and have a wealth of experience working within the Environmental Consultancy sectors, having undergone extensive training and continued professional development.

Enviroguide Consulting as a company remains fully briefed in European and Irish environmental policy and legislation. Enviroguide staff members are highly qualified in their field. Professional memberships include the Chartered Institution of Wastes

Management (CIWM), the Irish Environmental Law Association and Chartered Institute of Ecology and Environmental Management (CIEEM).

All surveying and reporting have been carried out by qualified and experienced ecologists and environmental consultants. WMC, Ecologist with Enviroguide, undertook the desktop research and authored this report. BMC, Ecologist with Enviroguide undertook the breeding and winter bird surveys. SH and YM, Ecologists with Enviroguide undertook the habitat mapping to Fossitt. J. (2000) level 3 of all habitats at the site, preliminary fauna survey assessing the suitability of the habitats for and searching for signs of mammals, birds, amphibians, reptiles and rare or protected invertebrates, invasive flora survey and preliminary flora survey. EK carried out an updated ground truthing survey on the 1st of August 2024, following on from the previous aforementioned surveys carried out on the 9th of June 2023 and the 19th of July 2023.

BMC is an Ecologist and experienced Ornithologist with 13 years of bird survey experience. Brian is a longstanding and active member of Bird Watch Ireland and has provided Ornithology survey work for ecological consultancies, e.g., vantage points surveys of gulls, terns, raptors, waders and wildfowl; hinterland surveys of the above as well as riverine species; and breeding waders and country birds. Brian is highly experienced with all survey methodologies and with surveying all species groups of Irish birds and migrants.

WMC has a B.Sc. in Applied Freshwater and Marine Biology from Galway-Mayo Institute of Technology. WMC has four years of experience in ecological surveying and in this time, he has covered a wide range of ecological topics including ornithological surveying, bat surveying, badger surveying/exclusions, otter surveying, macroinvertebrate surveying and habitat surveying among others. WMC has also completed the field and report work of numerous planning surveys including Preliminary Ecological Appraisals (PEA), Appropriate Assessment (AA) Screenings, Natura Impact Statements (NIS), and Ecological Clerk of Works (ECoW) surveys.

SH has a B.Sc. (Hons) in Zoology and a Ph.D. in Marine Ecology from University College Dublin, and a wealth of experience in desktop research, bioinformatics analyses, literature review and reporting, as well as practical field and laboratory experience including habitat mapping, invasive species surveys, terrestrial fauna surveys (incl. mammal presence and bat activity surveys), freshwater and marine fish surveys and environmental DNA analysis. SH has prepared several Stage I and Stage II Appropriate Assessment Reports and Ecological Impact Assessments (EcIA). Additionally, SH has authored and supported the preparations of a number of Biodiversity Chapters for Environmental Impact Assessment Reports.

YM is an Ecologist with Enviroguide and has a B.Sc. in Botany from Tokyo University of Agriculture and a M.Sc. in Botany from Hokkaido University. Yumi has practical field experience and provided flora surveys, rare and protected plant species surveys, phytosociological vegetation surveys, habitat assessments/mapping and invasive species surveys. YM has prepared several reports for AA screening, habitat assessment and Invasive Species Management Plan. YM is also a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

EK has a BSc in Psychology from the University of Maryland, USA and an MSc in Biodiversity and Conservation from Trinity College Dublin. His experience includes desktop research, literature-scoping review, and report writing as well as vegetation surveys, rare species surveys, and habitat mapping. EK has contributed to the preparation of several AA Screenings, Ecological Impact Assessments (EcIA) and EIAR Biodiversity Chapters, as well as Biodiversity Net Gain (BNG) Reports.

1.3 Description of Proposed Development

1.3.1 Site Location

The following details on the Site location (see Figure 1) have been extracted from the planning report (McGill Planning, 2024):

"*The site is located on the northern edge of the built-up area of Swords and is c.13.57 hectares in size. It is situated immediately north of Glen Ellan Road and is adjacent to the former site of Celentica/Motorola, known as Balheary Demesne/Balheary Industrial Park. Jugback Lane forms the western boundary and the Broad Meadow River flowing west-east along the northern boundary of the site. The subject site is an irregular shape. Within the boundaries of the site, there are no existing structures or buildings. In terms of topography, the site itself is relatively flat, gently sloping towards the Broadmeadow River. An existing hedgerow transverses north to south through the entire site. A private residence is located directly adjacent to the northwest corner of the site, along Jugback Terrace.*"

1.3.2 Proposed Development Description

1.3.2.1 Townhouse

"*The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 132 no. houses and 508 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin road / R125 Seatown West Roundabout.*"

1.3.2.2 Duplex (Option A)

"*The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 116 no. houses and 524 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road*

/ Balheary Road junction and the R132 Dublin Road / R125 Seatown West Roundabout".

1.3.3 Drainage and Water Supply

1.3.3.1 Surface water

Much of the surface water occurring on the Site of the Proposed Development will be absorbed by a variety of Sustainable urban Drainage Systems (SuDS) features which will be described below.

Surface water exits the Site via 2 outflows namely the outflow to the Broadmeadow River via the swale to the north of the Site and the outflow to the existing Swords surface water drainage network to the south of the Site. Surface water exiting to the swale and subsequent Broadmeadow River to the north does so via a 16.8L/S hydrobrake to restrict the flow of water during an exceptional rainfall event. Surface water exiting the Site to the Swords surface water network to the south does so via a 2L/S hydrobrake (see Figure 3 and Figure 4 for the townhouse layout, and Figure 8 and Figure 9 for the option A duplex layout).

There are a number of proposed SuDS features located across the Site including:

Raingarden – There are a number of Proposed raingardens to be constructed on Site. These SuDS features will have an increased porosity (in comparison to non-raingarden areas) of 30% which will allow surface water during a rainfall event to percolate naturally to the soil which avoids overburdening the Site's surface water outflows of the Broadmeadow Water to the north and the Swords surface water network to the south.

Permeable Paving – Permeable paving is proposed to be used outside of the majority of the dwellings on Site. Permeable paving allows water do percolate naturally into the ground where in a traditional (i.e. tarmac) paving system, water would be unable to percolate via the tarmac forcing it to flow to the Site's surface water drainage outflows, causing unnecessary overload.

Grass Swale/Land Drain – This SuDS feature will be located running north to south predominantly along the central open area on Site. Grass swales allow water to percolate naturally into the soil without overburdening the Site's outflows of the Broadmeadow Water or the Sword's surface water drainage network.

As per item 5 of the RFI received from Fingal County Council (Decision Order No. PF/3148/24), it has been requested that a naturalised/vegetated swale be installed between the northern surface water outfall and the Broadmeadow Water. This will be included as part of the project plans and will assist in percolating any outfall arising from the Proposed Development and will minimise any potential negative effects that a direct outfall would have on the natural hydrological regime of the Broadmeadow Water.

Detention Basin – There will be 6 no. detention basins located mainly in the north and south of the Site. Surface water will drain to and pool within these detention basins where water will be allowed to percolate to the ground naturally, without overburdening the Site's outflows of the Broadmeadow Water or the Swords surface water drainage network.

Green Roof – Apartment blocks 2 – 11 on Site will feature green roofs. Green roofs feature plant species which assist in the absorption of surface water after a rainfall event. This aids in preventing the surface water drainage network from becoming overloaded through natural processes, where the plant species absorb excess surface water through their roots and subsequently expel water vapour to the air by means of photosynthesis.

See Figure 5 and Figure 6 for the townhouse layout, and Figure 10 and Figure 11 for the option A duplex layout.

1.3.3.2 Foul Drainage

Foul drainage will arise from the various buildings across the Site including the apartment blocks, the houses and the duplexes and will be moved across Site by a foul drainage network which will flow roughly in the same directions as the surface water drainage will (see Figure 3 and Figure 4 for the townhouse layout, and Figure 8 and Figure 9 for the option A duplex layout). Foul sewage will be pumped out of the Site to the existing Swords foul sewage network south of the Site by a foul pumping station located in the north of the Site. Foul water exiting the Site flows to the Swords Wastewater Treatment Plant (WwTP) which is running under capacity, though, is currently non-compliant in chemical and physical parameters of ammonia-total (as N), suspended solids and total nitrogen. However, although the plants outflow is non-compliant in the aforementioned parameters, it will not have an affect on the WFD objectives of the downstream waterbodies or Malahide Estuary SAC/Malahide Estuary SPA as a result of the following information (Uisce Éireann, 2023):

- The Swords WwTP has an additional hydraulic capacity and organic capacity, as the current max hydraulic loading is 56.9% of the peak hydraulic capacity as constructed, and the collected organic load is 85.9% of the organic capacity as constructed.
- The discharges from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

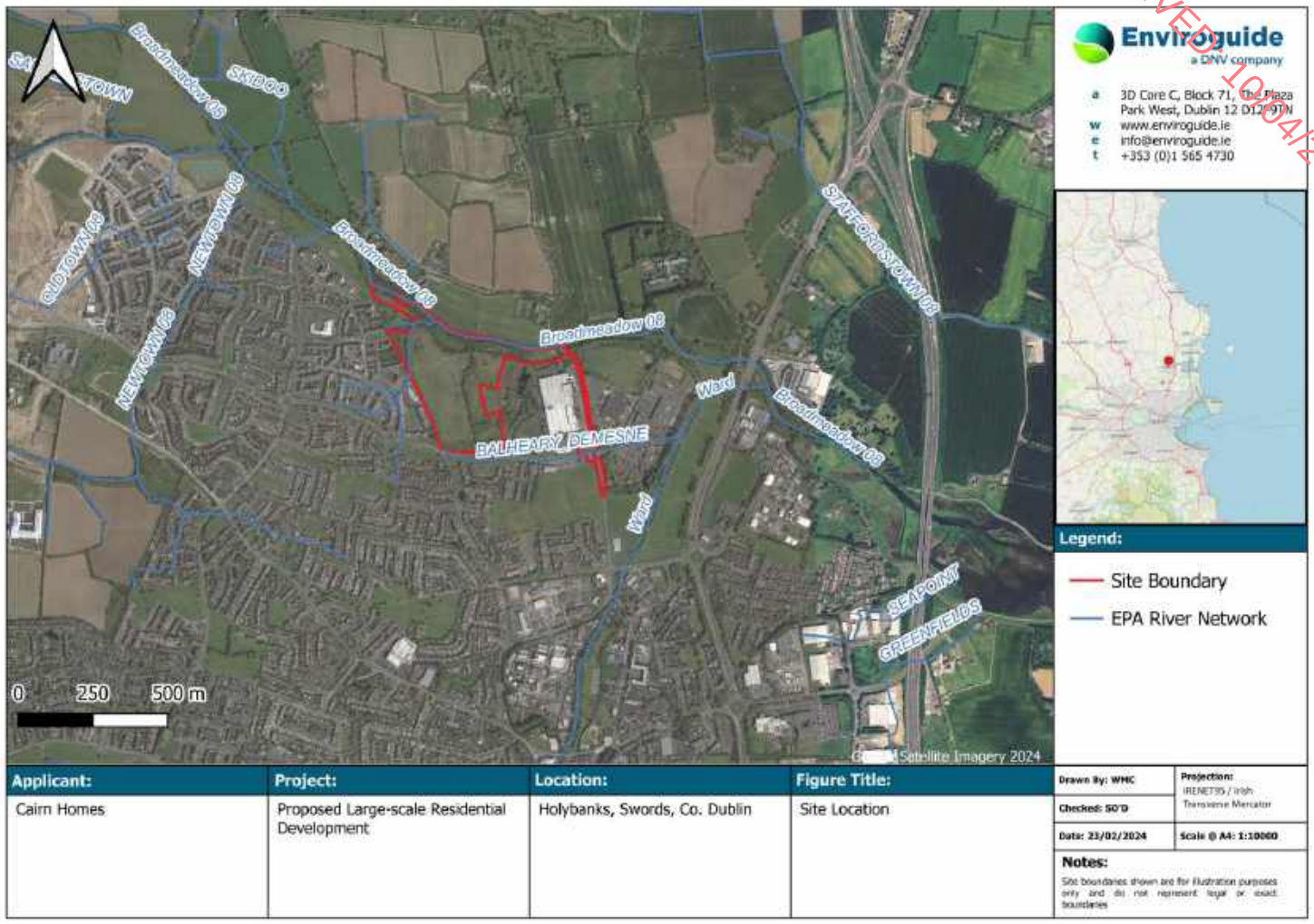

FIGURE 1. SITE LOCATION

FIGURE 2. PROPOSED SITE LAYOUT (TOWNHOUSE) (DRG NO. PL-RFI-003, MCORM 2025).

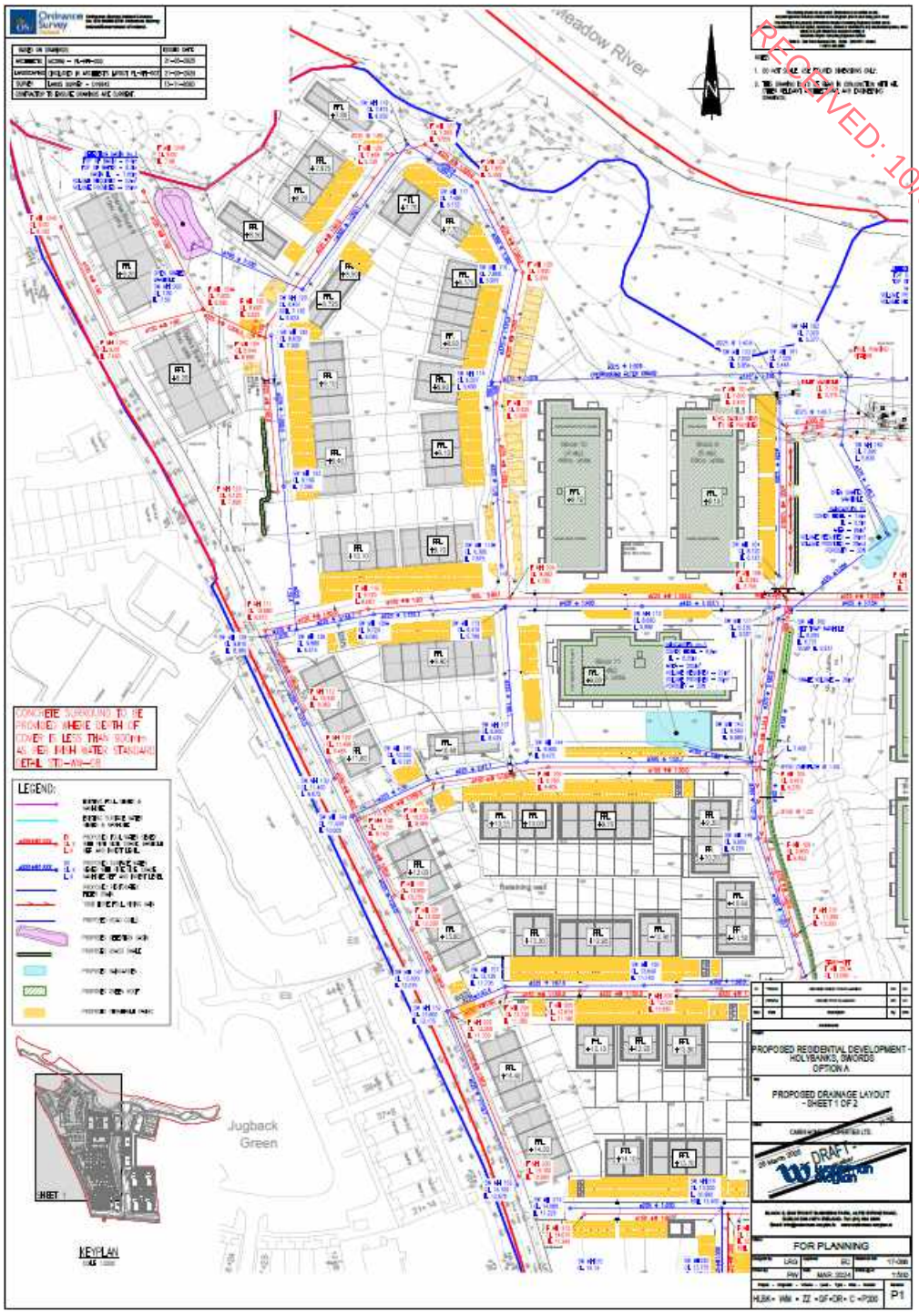

FIGURE 3. SURFACE AND FOUL WATER DRAINAGE (WESTERN) (TOWNHOUSE) (DRG NO. P200, WATERMAN MOYLAN 2025).

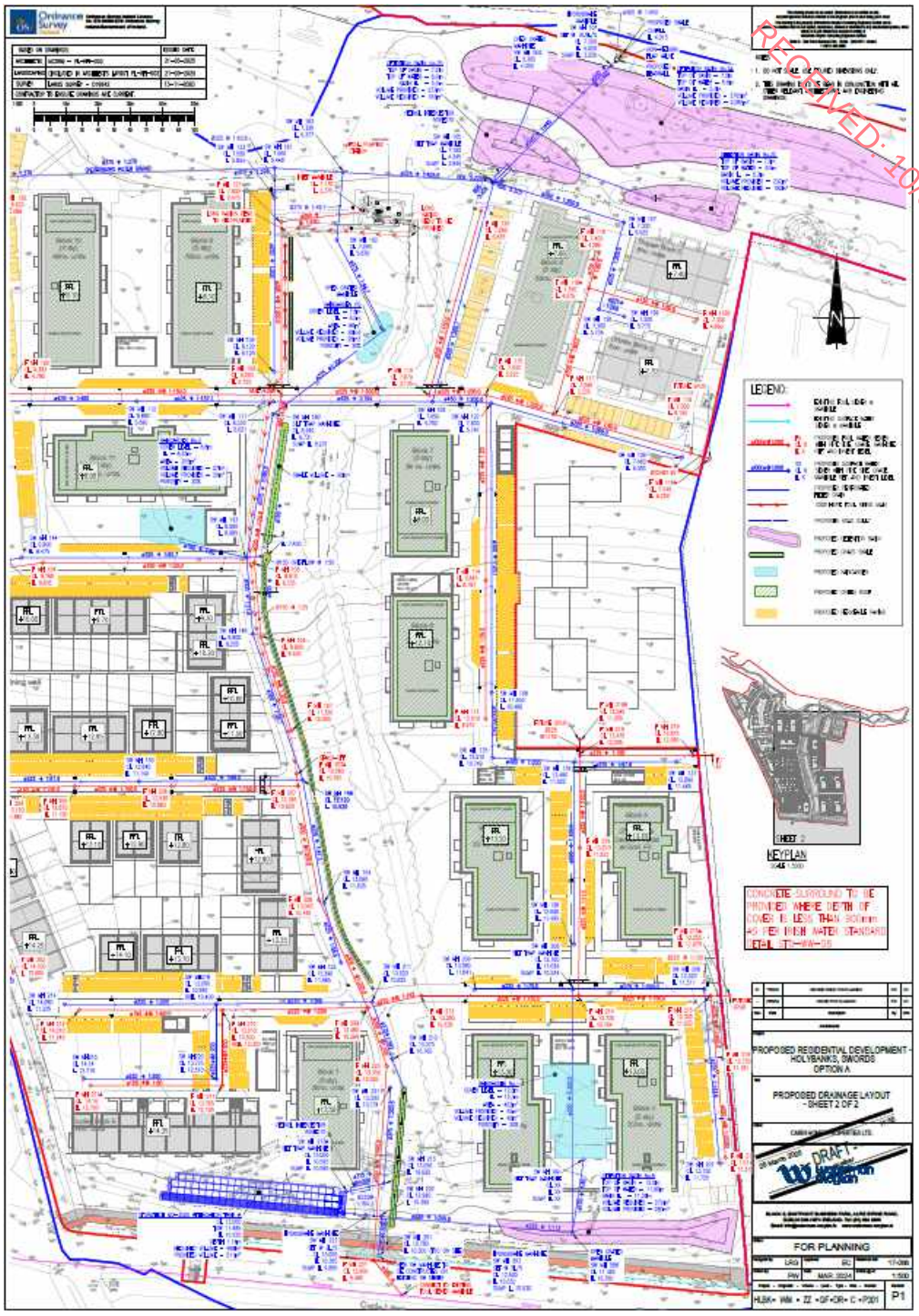

FIGURE 4. SURFACE AND FOUL WATER DRAINAGE (EASTERN) (TOWNHOUSE) (DRG NO. P201, Waterman Moylan 2025).

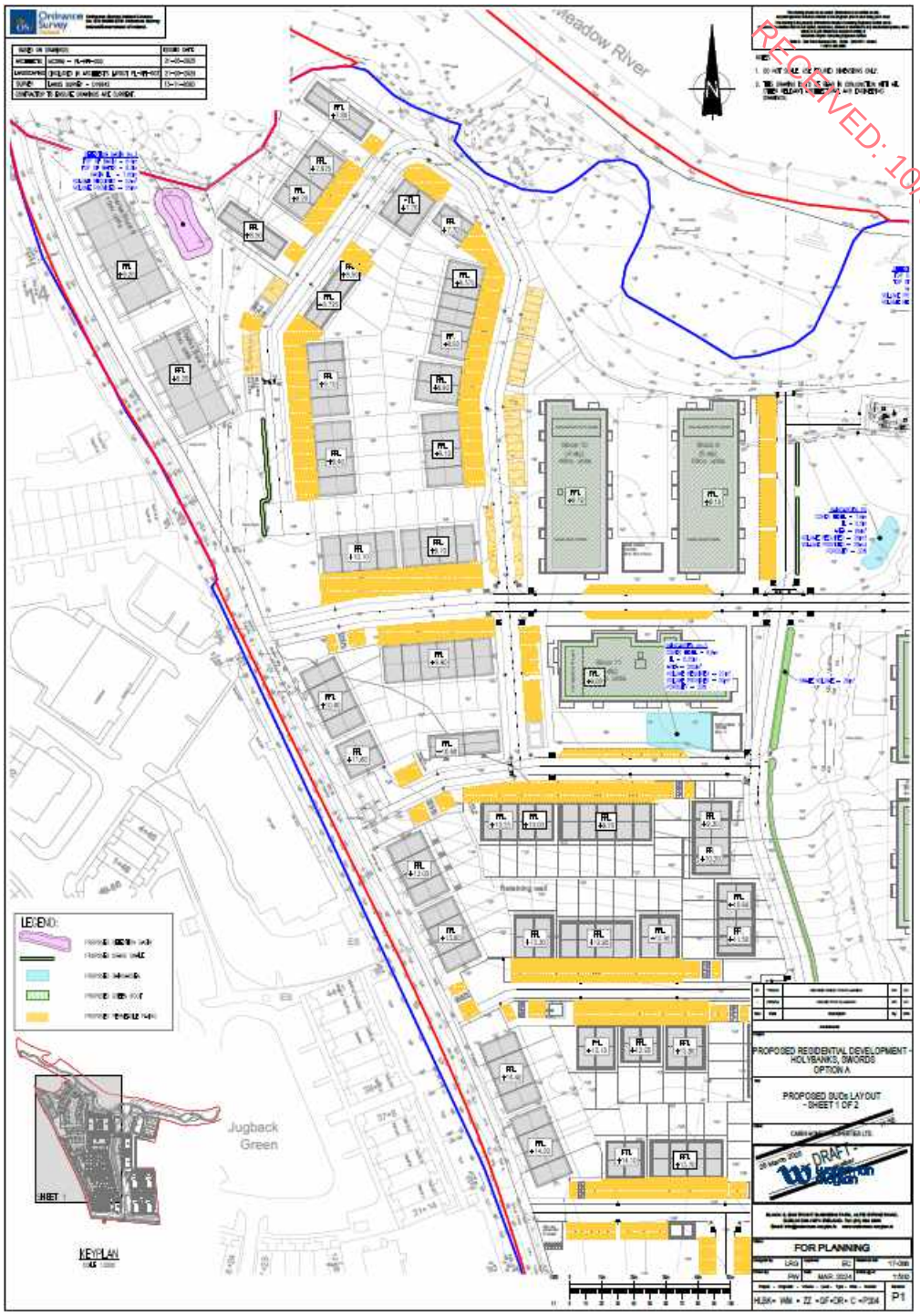

FIGURE 5. SUDS LAYOUT (WESTERN) (TOWNHOUSE) (DRG NO. P204, WATERMAN MOYLAN 2025).

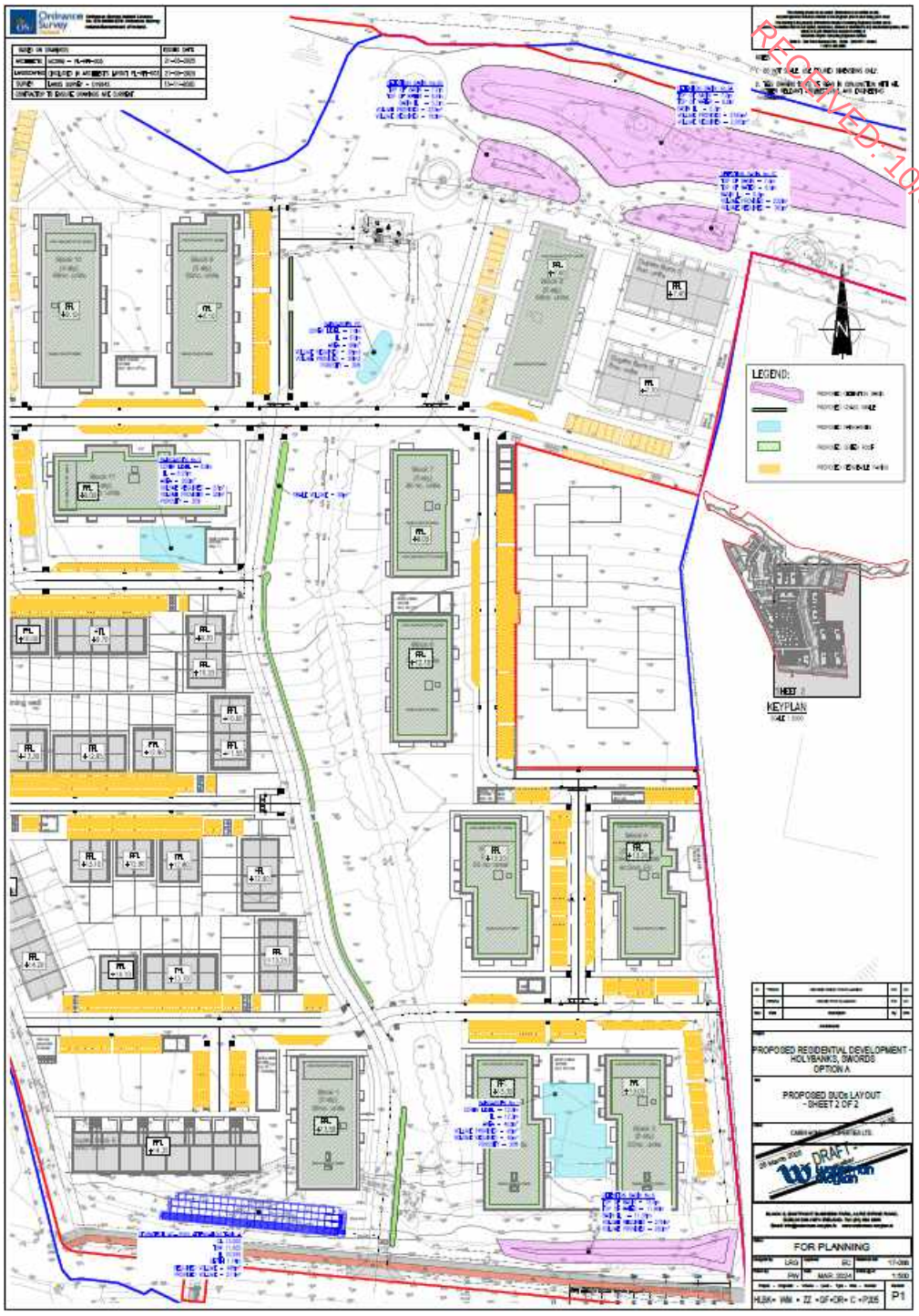

FIGURE 6. SUDS LAYOUT (EASTERN) (TOWNHOUSE) (DRG NO. P205, WATERMAN MOYLAN 2025).

FIGURE 7. PROPOSED SITE LAYOUT (DUPLEX – OPTION A) (DRG NO. PL-RFI-010, MCORM 2025).

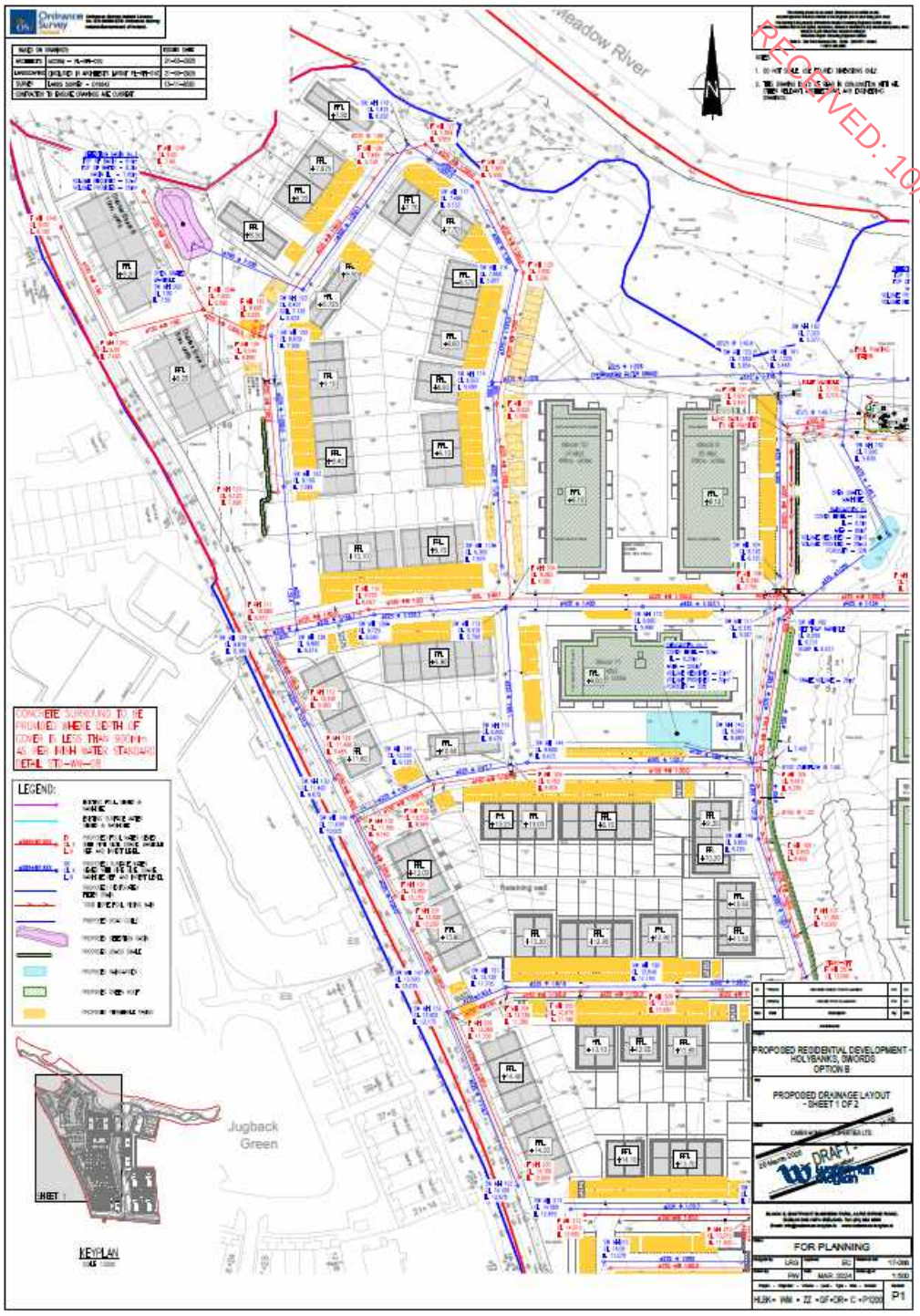

FIGURE 8. SURFACE AND FOUL WATER DRAINAGE (WESTERN) (DUPLEX – OPTION A) (DRG NO. P1200, WATERMAN MOYLAN 2025).

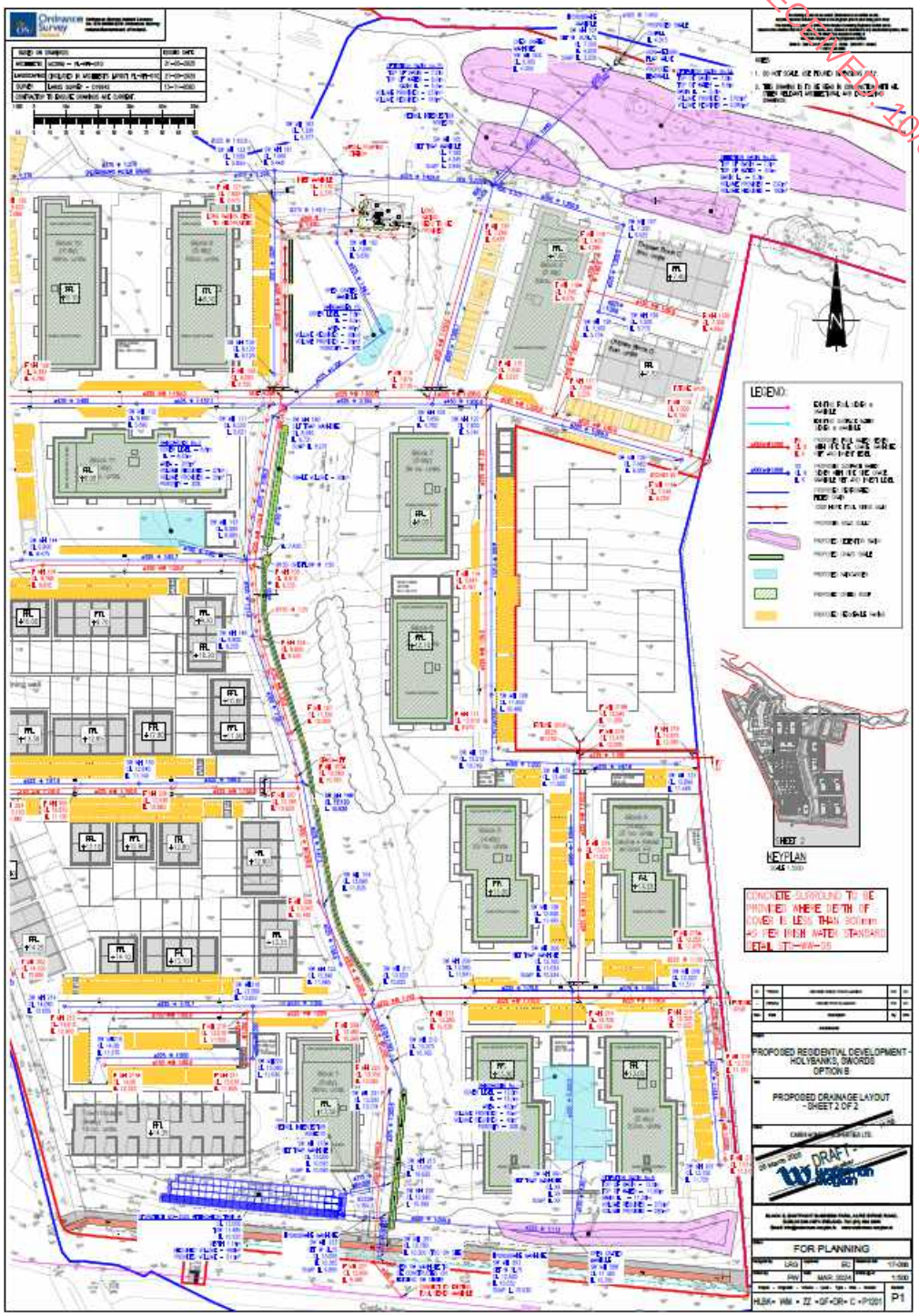

FIGURE 9. SURFACE AND FOUL WATER DRAINAGE (EASTERN) (DUPLEX – OPTION A) (DRG NO. P1201, WATERMAN MOYLAN 2025).

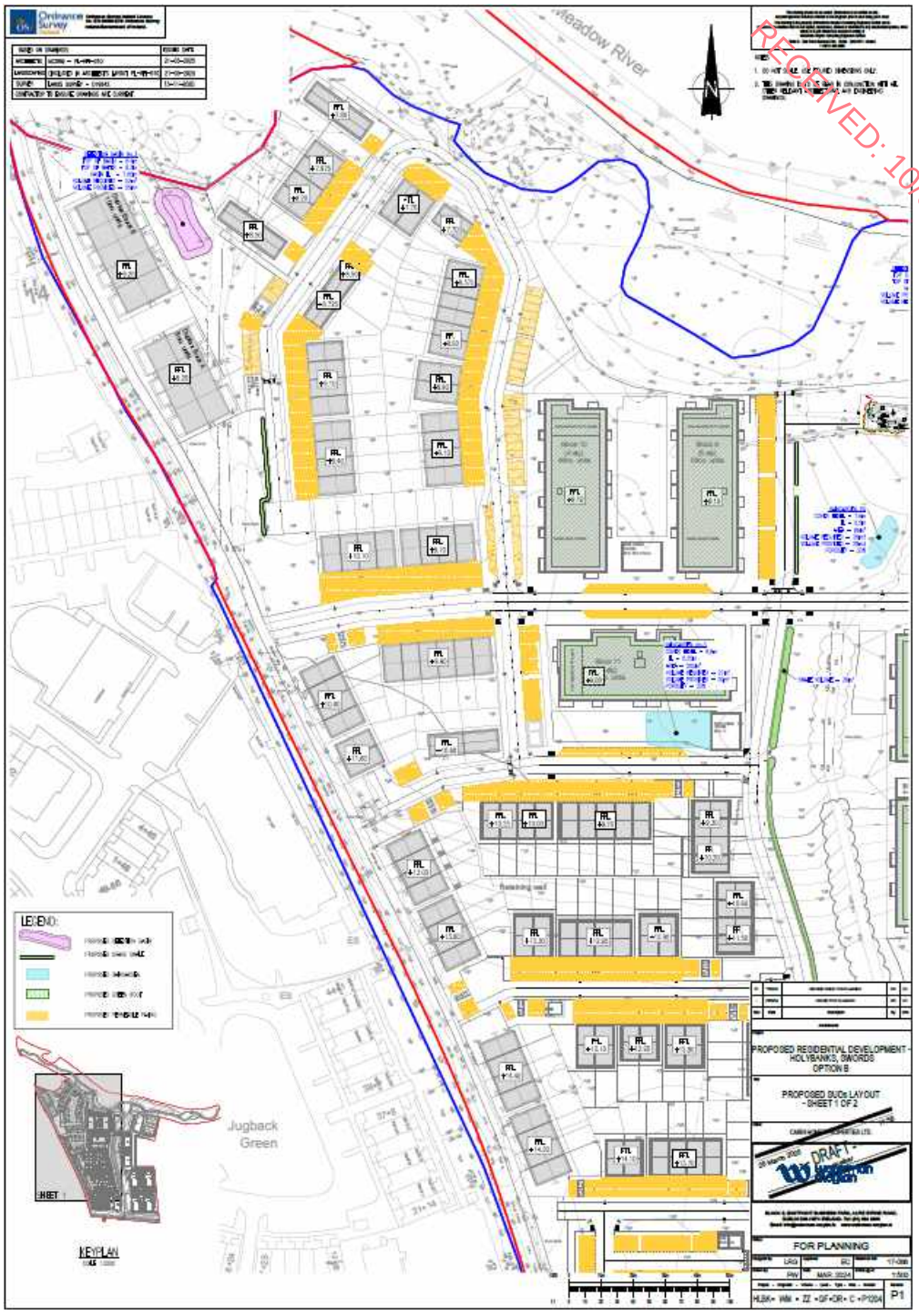

FIGURE 10. SUDS LAYOUT (WESTERN) (DUPLEX – OPTION A) (DRG NO. P1204, WATERMAN MOYLAN 2025).

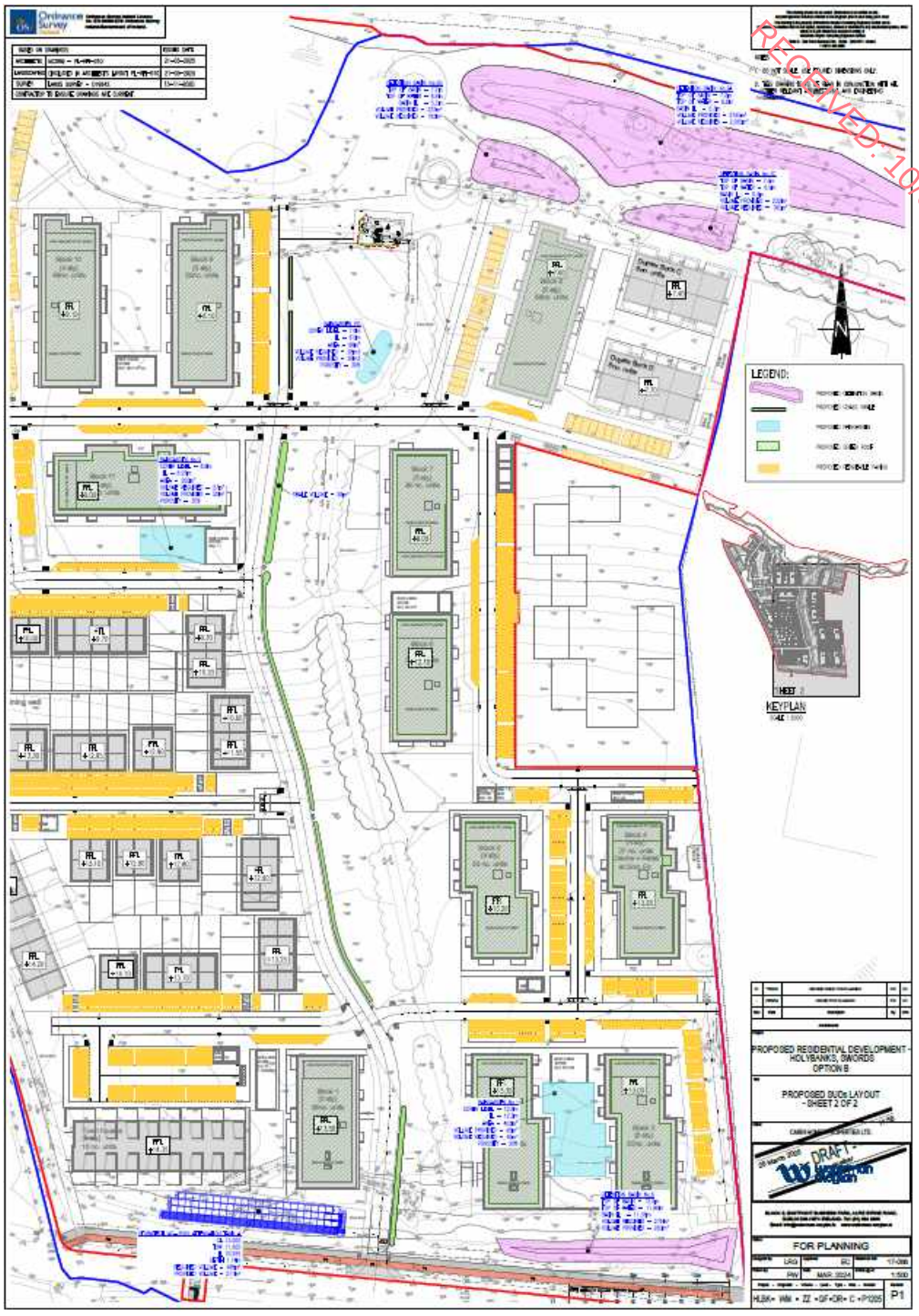

FIGURE 11. SUDS LAYOUT (EASTERN) (DUPLEX – OPTION A) (DRG NO. P1205, WATERMAN MOYLAN 2025).

2 LEGISLATIVE AND POLICY CONTEXT

2.1 Legislative Background

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protected Areas (SPAs). The Habitats Directive has been transposed into Irish law through the EC (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011). It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected sites throughout the European Community.

SACs and SPAs are collectively known as "Natura 2000" or "European" sites. SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the sites; from these the conservation objectives of the site are derived.

An 'Appropriate Assessment' (AA) is an assessment required prior to the grant of planning permission to determine whether a plan or project, based on best scientific knowledge, will have an adverse effect on the integrity of a European site, either alone or in combination with other plans and projects. It is required for any plan or project not directly connected with or necessary to the management of a site but likely to have a significant effect on it.

An AA is required under Article 6 of the Habitats Directive where a project or plan may give rise to significant effects upon a Natura 2000 site. Paragraph 3 states that:

"*6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site, in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."*

2.1.1 Legislative Context

The obligations in relation to Appropriate Assessment have been implemented in Ireland under Part XAB of the Planning and Development Act 2000, as amended ("the 2000 Act"), and in particular Section 177T and Section 177V thereof in relation to Natura Impact Statements and Appropriate Assessment. The relevant provisions of Section 177T and 177V are set out below:

"***177T.—*** *(1) In this Part— (a) A Natura impact report means a statement for the purposes of Article 6 of the Habitats Directive, of the implications of a land use plan, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites.*

(b) A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one European site, in view of the conservation objectives of the site or sites.

(2) Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one European site in view of the conservation objectives of the site or sites."

(3) …

(4) The applicant for consent for proposed development may, or if directed in accordance with subsection (5) by a competent authority, shall furnish a Natura impact statement to the competent authority in relation to the proposed development.

(5) At any time following an application for consent for proposed development a competent authority may give a notice in writing to the applicant concerned, directing him or her to furnish a Natura impact statement.

(6) ...

(7) (a) Without prejudice to subsection (1) a Natura impact report or a Natura impact statement shall include all information prescribed by regulations under section 177AD .

(b) Where appropriate, a Natura impact report or a Natura impact statement shall include such other information or data as the competent authority considers necessary to enable it to ascertain if the draft Land use plan or proposed development will not affect the integrity of the site."

"177V.— *(1) An appropriate assessment carried out under this Part shall include a determination by the competent authority under Article 6.3 of the Habitats Directive as to whether or not a draft Land use plan or proposed development would adversely affect the integrity of a European site and an appropriate assessment shall be carried out by the competent authority, in each case where it has made a determination under section 177U(4) that an appropriate assessment is required, before—*

(a) the draft Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent is given for the proposed development.

(2) In carrying out an appropriate assessment under subsection (1) the competent authority shall take into account each of the following matters:

(a) the Natura impact report or Natura impact statement, as appropriate;

(b) any supplemental information furnished in relation to any such report or statement;

(c) if appropriate, any additional information sought by the authority and furnished by the applicant in relation to a Natura impact statement;

(d) any additional information furnished to the competent authority at its request in relation to a Natura impact report;

(e) any information or advice obtained by the competent authority;

(f) if appropriate, any written submissions or observations made to the competent authority in relation to the application for consent for proposed development;

(g) any other relevant information.

(3) Notwithstanding any other provision of this Act, or, as appropriate, the Act of 2001, or the Roads Acts 1993 to 2007 and save as otherwise provided for in sections 177X, 177Y, 177AB and 177AC, a competent authority shall make a Land use plan or give consent for proposed development only after having determined that the Land use plan or proposed development shall not adversely affect the integrity of a European site.

(4) Subject to the other provisions of this Act, consent for proposed development may be given in relation to a proposed development where a competent authority has made modifications or attached conditions to the consent where the authority is satisfied to do so having determined that the proposed development would not adversely affect the integrity of the European site if it is carried out in accordance with the consent and the modifications or conditions attaching thereto."

2.2 Policy Context

2.2.1 Fingal County Development Plan

Policies and objectives of the Fingal Development Plan 2023 – 2029 that are of relevance to this Screening Report are outlined below:

- **Policy GINHP5**: "*Develop the green infrastructure network to ensure the conservation and enhancement of biodiversity, including the protection of European Sites, the provision of accessible parks, open spaces and recreational facilities (including allotments and community gardens), the sustainable management of water, the maintenance of landscape character including historic landscape character and the protection and enhancement of archaeological and heritage landscapes*."
- **Objective GINHO2:** "*Reduce fragmentation and enhance the resilience of Fingal's green infrastructure network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider green infrastructure network."*
- **Policy GINHP12:** "*Protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, and Refuges for Fauna."*
- **Objective GINHO27:** *"Support the National Parks and Wildlife Service, in the maintenance and achievement of favourable conservation status for the*

habitats and species in Fingal by taking full account of the requirements of the Habitats and Birds Directives, in the performance of its functions."

- **Objective GINHO28:** *"Ensure that development does not have a significant adverse impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Habitat Directive Annex I sites and Annex II species contained therein, and on rare and threatened species including those protected by law and their habitats."*
- **Policy GINHP17:** *"Strictly protect areas designated or proposed to be designated as Natura 2000 sites (i.e., Special Areas of Conservation (SACs) and Special Protection Areas (SPAs); also known as European sites) including any areas that may be proposed for designation or designated during the lifetime of this Plan."*
- **Objective GINHO35:** *"In accordance with Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities 2010, any plans or projects that are likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects, are subject to a screening for Appropriate Assessment unless they are directly connected with or necessary to the management of a Natura 2000 site.*
- **Objective GINHO79:** *"Ensure that there is appropriate public access to the coast including the provision of coastal walkways and cycleways, while taking full account of the need to conserve and enhance the natural and cultural heritage of the coast and the need to avoid significant adverse impacts on European Sites and species protected by law, through Screening for Appropriate Assessment, and examine the designation of traditional walking routes thereto as public rights of way."*

2.2.2 Fingal County Biodiversity Action Plan

Fingal County Biodiversity Action Plan (2023-2030) is set out to protect and improve biodiversity through six topics:

- Delivery of the Ecological Network across Fingal;
- Building for Biodiversity;
- Climate change adaption and mitigation;
- Agri environment schemes and rewilding;
- Research & monitoring; and
- Raising awareness.

Note that the BAP is still in the consultation phase, and only a draft version has been made available online.

2.3 Stages of Appropriate Assessment

The AA process is a four-stage process. Each stage requires different considerations, assessments and tests to ultimately arrive at the relevant conclusion for each stage. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

The four stages of an AA, can be summarised as follows:

- **Stage 1: *Screening*.** The Screening for AA considers whether a plan or project is directly connected to or necessary for the management of a European site, or whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a European site in view of its conservation objectives.
- **Stage 2: *Natura Impact Statement (NIS).*** Where Stage 1 determines that significant effects are likely, uncertain or unknown, the preparation of a NIS is required. The NIS must include a scientific examination of evidence and data to classify potential impacts on any European site(s) in view of their conservation objectives in the absence of mitigation. The NIS will identify appropriate mitigation to remove the potential for likely significant adverse effects on any European site(s). If the competent authority determines that the plan or project would have an adverse effect on the integrity of any European site(s) despite mitigation, it can only grant consent after proceeding through stages 3 and 4.
- **Stage 3: *Assessment of alternative solutions***. If the outcome of Stage 2 is negative i.e., adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.
- **Stage 4: *Assessment where no alternative solutions exist and where adverse impacts remain***. The final stage is the main derogation process examining whether there are imperative reasons of overriding public interest (IROPI) for allowing a plan or project to adversely affect a European site, where no less damaging solution exists.

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures. First the project should aim to avoid any negative effects on European sites by identifying possible effects early in the planning stage and designing the project to avoid such effects. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable mitigation is possible, a refusal for planning permission may be recommended. In this case, the project will generally only be considered where no alternative solutions are identified and the project is required for IROPI, or, in the case of priority habitats, considerations of health or safety, or beneficial consequences of primary importance for the environment or to other IROPI. Then compensation measures are required for any remaining adverse effects.

2.4 Stage 1: Appropriate Assessment Screening Conclusion

An AA Screening Report was prepared for the Proposed Development by Enviroguide Consulting in February 2024.

The conclusion of the AA Screening Report is as follows:

"*The Proposed Development at Holybanks, Swords, Co. Dublin has been assessed taking into account:*

- *The nature, size and location of the proposed works and possible impacts arising from the construction works.*
- *The QIs and conservation objectives of the European sites*
- *The potential for in-combination effects arising from other plans and projects.*

In conclusion, upon the examination, analysis and evaluation of the relevant information and applying the precautionary principle, it is concluded by the authors of this report that the possibility ***cannot be excluded*** *that the Proposed Development will have a significant effect on any of the European sites listed below:*

- ***Malahide Estuary SAC (000205)***
- ***Malahide Estuary SPA (004025)***

In carrying out this AA screening, mitigation measures have not been taken into account. Standard best practice construction measures which could have the effect of mitigating any effects on any European Sites have similarly not been taken into account.

On the basis of the screening exercise carried out above, it can be concluded, on the basis of the best scientific knowledge available and objective information, that the possibility of any significant effects on the above listed European sites, whether arising from the project itself or in combination with other plans and projects, cannot be excluded in light of the above listed European sites' conversation objectives. Thus, there is a requirement to proceed to Stage 2 of the Appropriate Assessment process; and a NIS has been prepared and accompanies this submission under separate cover."

As such, this NIS will assess the potential effects of the Proposed Development on

- **Malahide Estuary SAC (000205)**
- **Malahide Estuary SPA (004025)**

These sites are linked to the Proposed Development via a hydrological pathway.

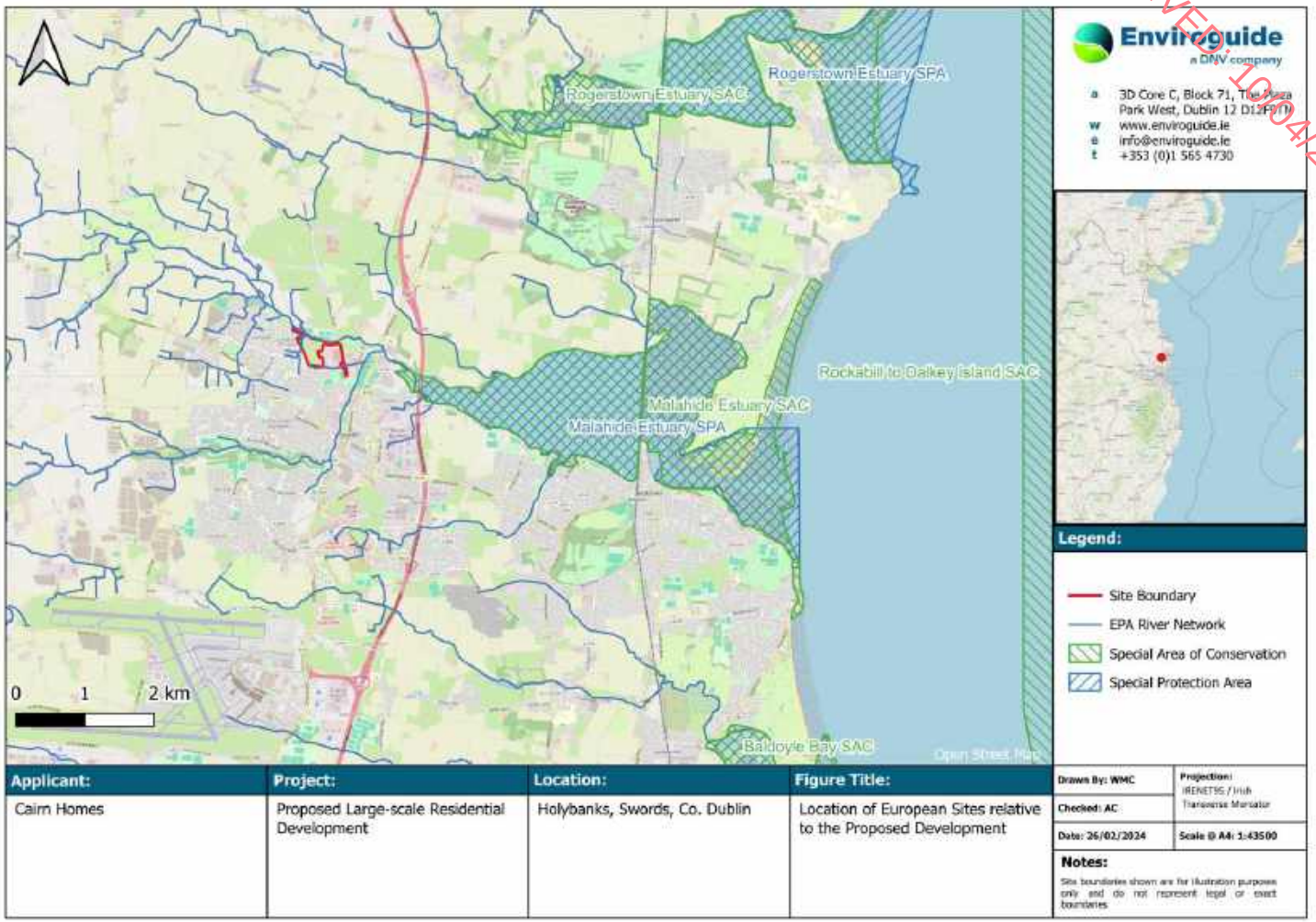

FIGURE 12. RELEVANT EUROPEAN SITES AS IDENTIFIED IN AA SCREENING (ENVIROGUIDE 2024).

3 NIS METHODOLOGY

3.1 Guidance

This NIS has been undertaken in accordance with the following guidance:

- *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities.* (Department of Environment, Heritage and Local Government, 2010 revision);
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities.* Circular NPW 1/10 & PSSP 2/10;
- *Communication from the Commission on the precautionary principle* (European Commission, 2000);
- *Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC* (European Commission, 2019);
- *Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (European Commission, 2021);
- *Appropriate Assessment Screening for Development Management, OPR Practice Note PN01, Office of the Planning Regulator March 2021;* and
- *Amendments to section 42 of the Planning and Development Act 2000, as amended and associated Planning and Development Regulations 2001. Department of the Environment, Heritage and Local Government. (2021). Circular Letter: EUIPR 01/2021.*

3.2 NIS Steps

This NIS has been prepared following the steps described below:

- Description of the baseline existing environment at the Site of the Proposed Development;
- Review and description of available data for the relevant European site(s) potentially affected as identified in the Screening Report (Enviroguide 2024);
- Identification and description of potential effects on the relevant European site(s) and their designated QIs/SCIs;
- Assessment of the likely significance of the effects and/or impacts identified on the relevant QIs/SCIs in view of their Site Specific Conservation Objectives (SSCOs) where available;
- Description and characterisation of other projects or plans that in combination with the Proposed Development have the potential for having significant effects on the relevant QIs/SCIS;

- Identification of appropriate mitigation measures to remove the likelihood of significant effects on any European site(s) and their QIs/SCI; and
- Exclusion of sites where it can be objectively concluded that there will be no significant effects once mitigation measures are adhered to.

3.3 Desk Study

A desktop study was carried out to collate and review available information, datasets and documentation sources relevant for the completion of the NIS. The desk- top study, completed in July 2024, relied on the following sources:

- Information on the network of European sites, relevant boundaries, QIs and conservation objectives, obtained from the National Parks and Wildlife Service (NPWS) at *www.npws.ie* and the European Environment Agency (EEA) at *https://natura2000.eea.europa.eu/*;
- Information on the status of EU protected habitats and species in Ireland, obtained from the NPWS Article 17 reports;
- Text summaries of the relevant European sites taken from the respective Site Synopses for each site, available at *www.npws.ie*;
- Information on waterbodies, catchment areas and hydrological connections obtained from the Environmental Protection Agency (EPA) at www.*gis.epa.ie*;
- Information on bedrock, groundwater, aquifers and their statuses, obtained from Geological Survey Ireland (GSI) at *www.gsi.ie*;
- Satellite imagery and mapping obtained from various sources and dates including Google, Digital Globe, Bing and Ordnance Survey Ireland; and
- Information on the extent, nature and location of the Proposed Development, provided by the applicant and their design team.

A comprehensive list of all the specific documents and information sources consulted in the completion of this report is provided in Section 6 - References.

3.4 Field Surveys

A range of field surveys have been carried out at the Site to date. These, as well as further surveys yet to be scheduled are summarised in Table 1.

TABLE 1. FIELD SURVEYS UNDERTAKEN AT THE PROPOSED DEVELOPMENT SITE.

Survey	Surveyor	Dates
Habitat mapping to Fossitt (2000) Level 3 of all habitats at the Site	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Preliminary fauna survey assessing the suitability of the habitats for and searching for signs of mammals, birds,	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024

Survey	Surveyor	Dates
amphibians, reptiles and rare or protected invertebrates		
Invasive Flora Survey	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Preliminary Flora Survey	YM, SH EK	9th of June 2023 19th of July 2023 1st of August 2024
Breeding Bird Surveys	BMC	9th of August 2023 17th of August 2023 25th of August 2023 8th of May 2024 12th of June 2024 8th of August 2024
Wintering Bird Surveys	BMC	6th of November 2023 9th of January 2024 19th of January 2024 1st of February 2024
Pre-commencement Mammal Survey	Unassigned	TBC
Amphibian Survey (if required)	Unassigned	TBC

3.5 Impact Prediction

Potential impacts on the relevant European site(s) identified during the AA Screening are based on information regarding their QIs and/or SCI species, and the attributes and targets relating to their SSCOs where available. These have been informed by the desk study and any field surveys carried out prior to the preparation of this report.

Impact prediction is based on the Source-Pathway-Receptor (S-P-R) model. The following describes the steps of the S-P-R approach taken in this NIS:

- Potential sources of effects were identified based on the Proposed Development description and details, including changes to potentially suitable ex-situ habitats at the Site (i.e., habitats utilised by Species of Conservational Importance (SCI) bird species outside of their designated SPAs).
- Up-to-date GIS spatial datasets for water catchments as well as any information from relevant site investigations and/or field surveys were used to identify the QIs/ SCIs within the relevant European site(s) that have a notable S-P-R connection to the Proposed Development:
    - The catchment data were used to establish or discount potential hydrological connectivity between the Proposed Development and any QIs/SCIs.

- Groundwater and bedrock information used to establish or discount potential hydrogeological connectivity between the Proposed Development and any QIs/SCIs.
- Air and land connectivity assessed based on Proposed Development details and proximity to QIs/SCIs.
- Consideration of potential indirect pathways, e.g., impacts to flight paths, *ex-situ* habitats, etc.

- Identification of potential impacts for those QIs/SCIs linked to the Proposed Development via notable S-P-R connections.

Where the preceding steps identified any potential for adverse impacts on any QIs/SCIs for the relevant European site(s), appropriate mitigation measures to eliminate the potential for significant adverse effects are identified in this report.

3.6 Limitations

Breeding bird surveys took place in the month of August 2023. This month is late in the breeding bird season making it difficult to determine whether or not breeding was taking place by the bird species present. Breeding will have been completed by many bird species by the month of August.

As a result of the above, a precautionary approach has been adopted with regard to breeding birds using the Site.

4 NATURA IMPACT STATEMENT

4.1 Existing Environment

4.1.1 Desk Study Results

4.1.1.1 Hydrology, Geology and Hydrogeology

The Site is located in the Nanny-Delvin catchment (catchment I.D 08) and in the Broadmeadow_SC_010 sub-catchment (sub-catchment I.D 08_3) (EPA, 2024).

The Proposed Site is almost completely enveloped by nearby watercourses namely, the Broadmeadow River to the north, an unnamed 2nd order stream traversing the west of the Site and the Balheary Demense Stream bordering the Site of the south, all of which flow into the Broadmeadow River with the unnamed stream doing so directly while the Balheary Demense Stream flows firstly via the Ward River. The Ward River is located approximately 168m east of the Site (EPA, 2024).

The Broadmeadow River, as well as the unnamed 2nd order stream, are listed within the Broadmeadow_040 (EU Code: IE_EA_08B020800) waterbodies group while the Balheary Demense Stream is listed within the Ward River_040 (IE_EA_08W010610) waterbodies group. The Broadmeadow_040 and Ward River_040 groups are listed as having a ‘moderate’ WFD status (2016-2021) and are both listed as being ‘at risk’ of failing to achieve their WFD objectives (EPA, 2024).

There are two relevant EPA water monitoring stations located near the Site. The first is located adjacent to the Site's boundary to the northeast (downstream), at the Balheary Road bridge (stn code: RS08B020800). This station measured a 'moderate' (3-4) q-value score for the 2020 survey period. The second station is located 250m south of the Site's boundary (upstream) at the Scotchstone bridge (RS08W010610) and achieved results paralleling the first water monitoring station site; a 'moderate' (3-4) q-value score for the 2020 survey period (EPA, 2024).

The Broadmeadow_040 waterbodies group recorded a downwards trend in total ammonia and ortho-phosphate parameters for the 2013-2018 survey period while the opposite was recorded for the Ward River_040 waterbodies group for the same period; an upwards trend in total ammonia and ortho-phosphate parameters (EPA, 2024).

The Site is located approximately 700m west of the Broadmeadow water (IE_EA_060_0100) transitional waterbody in which the aforementioned Broadmeadow and Ward Rivers drain. The Broadmeadow Water transitional waterbody achieved a 'moderate' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

Beyond the Broadmeadow Water transitional waterbody at the far side of the Malahide train viaduct is the Malahide Bay (IE_EA_060_0000) coastal waterbody located approximately 4.3km from the Site to the east. This waterbody has a 'moderate' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

The Malahide Bay coastal waterbody empties into the Northwestern Irish Sea (IE_EA_020_0000) coastal waterbody approximately 5.7km east of the Site. This waterbody has a 'good' WFD status for the 2016-2021 survey period and is listed as being 'at risk' of failing to achieve its WFD objectives (EPA, 2024).

TABLE 2. EPA MONITORING STATIONS AND ASSIGNED Q VALUES

EPA Monitoring Station name	Station Code	Location from Site	Distance from Site	Assigned Q value
Br nr Waterworks	RS08B020800	Northeast downstream	Adjacent	3-4 'Moderate'
Br d/s Scotchstone Br	RS08W010610	East upstream	0.7km	3-4 'Moderate'

The Site of the Proposed Development is situated on the Swords (IE_EA_G_011) groundwater body. The bedrock aquifer identified beneath the Site is mapped as 'Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones' (GSI, 2024).

The Groundwater Vulnerability Rating assigned to groundwater beneath the Site can be split up roughly into 3 strips of land, all of which run from northwest to southeast. The southernmost and largest of these strips of land is rated as having a 'moderate' groundwater vulnerability. Moving towards the north and traversing roughly the centre of the Site is a strip of land rated as having a 'low' groundwater vulnerability. The final and northernmost of these strips of land is rated as having a 'high' groundwater

vulnerability. The 'low' and 'high' rated strips of land mentioned secondly and thirdly are roughly the same size in surface area (GSI, 2024).

The Site is divided between a number of different soil types. Firstly, to the far south of the Site and running roughly along the southern redline boundary is an area of "mineral alluvium". The centre-west of the Site is made up of an area of 'Grey Brown Podzolics, Brown Earths (medium-high base status)' while the centre-east of the Site is made up of an area of 'made' soil. Proceeding northwards from the centre of the Site, there is a narrow strip of 'Renzinas, Lithosols'. Finally, running roughly parallel to the northern boundary of the Site is another area of 'Mineral alluvium' running in a northwestern-southeastern trend (GSI, 2024).

The quaternary sediments beneath the majority of the south of the Site are made up of 'urban' sediments. The centre-west of the Site is made up of an area of 'Till derived from limestones'. Moving northwards, there is a strip of 'Gravels derived from Limestones' near to the north of the Site running from northwest to southeast. At the northern boundary of the Site, there is a strip of 'Alluvium' and similar to the previously mentioned quaternary sediments, runs in a northwestern-southeastern trend (GSI, 2024).

The Waterbody Status for river, groundwater, transitional and coastal water bodies relevant to the Site as recorded by the EPA (2022) in accordance with European Communities (Water Policy) Regulations 2003 (SI no. 722/2003) are provided in Table 3.

TABLE 3. WFD RISK AND WATER BODY STATUS

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Surface Water Bodies						
Broadmeadow River	IE_EA_08B020800	North	0	Moderate	At risk	Adjacent to and downstream of the Site.
Unnamed Stream (2nd order)	IE_EA_08B020800	Within	0	Moderate	At risk	Within the Site.
Balheary Demense Stream	IE_EA_08W010610	South	0	Moderate	At risk	Adjacent to and downstream of the Site.
Ward River	IE_EA_08W010610	South	0.17	Moderate	At risk	Downstream of the Balheary Demense Stream. Upstream of the Broadmeadow River.
Transitional Waterbodies						
Broadmeadow Water	IE_EA_060_0100	East	0.7	Moderate	At risk	Downstream of the Broadmeadow River.
Coastal Waterbodies						

Waterbody Name	Water body; EU code	Location from Site	Distance from Site (km)	WFD water body status (2016-2021)	WFD 3rd cycle Risk Status	Hydraulic Connection to the Site
Malahide Bay	IE_EA_060_0000	East	4.3	Moderate	At risk	Broadmeadow Water discharges to Malahide Bay.
Northwestern Irish Sea	IE_EA_020_0000	East	5.7	Good	At risk	Malahide Bay discharges to the Northwestern Irish Sea.
Groundwater Bodies						
Swords Groundwater Body	IE_EA_G_011	N/A	N/A	Good	Not at risk	Underlying groundwater-body.

4.2 Relevant Field Survey results

4.2.1 Habitats & Flora

A variety of habitats was recorded at the Site, ranging from dry meadows (GS2) to mixed broadleaved woodland (WD1). Hedgerows (WL1) formed the field margins along with drainage ditches with varying water levels, noted to be generally low. No rare or protected habitat types were recorded, but pyramidal orchids (*Anacamptis pyramidalis*) and bee orchids (*Ophrys apifera)* were observed in relatively high abundance near the main pedestrian path crossing the larger of the meadow fields at the northern half of the Site. However, since the walkover survey visits carried out on the 9th of June 2023 and 19th of July 2023, it has been noted during the most recent walkover survey carried out on the 1st of August 2024 that the majority of the dry meadows (GS2) habitat has been mowed, diminishing the number of species noted during the most recent walkover survey compared to the previous surveys in 2023. No invasive flora listed on Schedule III of SI 477/2011 were observed. However, three species listed as 'Medium' impact invasives (Kelly et al. 2013) were recorded across the Site, namely butterfly bush (*Buddleja davidii),* himalayan honeysuckle (*Leycesteria formosa*) and sycamore (*Acer pseudoplatanus*). The stands of these species varied in maturity and extent across the Site, with the majority of it recorded within the eastern area of the northern woodland.

4.2.2 Fauna

4.2.2.1 Birds

4.2.2.1.1 Breeding Bird Survey 2023

The breeding bird surveys commenced on the mornings of the 9th of August, 17th of August and 25th of August 2023 at the Site near Holybanks, Swords, Co. Dublin. Transects were done through the Site to record all the present species. A final zigzag walk through the Site was done at the end of the survey to ensure no additional species were missed. A total of 37 no. species were recorded between the three breeding bird surveys.

Two red-listed species were recorded (grey wagtail (*Motacilla cinerea*) and stock dove (*Columba oenas*)). However, the stock dove records related purely to flyover birds and

weren't breeding on the Site. Grey wagtail were possibly breeding on the river at the north of the Site.

It was difficult to confirm breeding for many species due to the slightly later date that the surveys were undertaken. The surveys give a good representation of the species that would have been present earlier in the summer. Species such as spotted flycatcher (*Muscicapa striata*) and whitethroat (*Sylvia communis*) were likely migrants rather than breeding species.

4.2.2.1.2 Breeding Bird Survey 2024

The breeding bird surveys commenced on the mornings of the 8th of May, 12th of June and 8th of August 2024 at the Site near Holybanks, Swords, Co. Dublin. Transects were done through the site to record all the present species. A final zigzag walk through the site was done at the end of the survey to ensure no additional species were missed. **37** species were recorded between the three Breeding Bird Surveys.

One red-listed species was recorded (Swift (*Apus apus*)). However, due to the lack of suitable breeding habitat on the Site, Swifts were assessed as currently not breeding at the Site, instead using the skies above the Site as a foraging area.

4.2.2.1.3 Winter Bird Survey

Transects were done through the Site to record all the species that were present. A final zig-zag walk through the Site was done at the end of the survey to ensure no additional species were missed. A total of 41 species were recorded across the four winter bird surveys carried out to date on 6th of November 2023, 9th of January 2024, 19th of January 2024 and 1st of February 2024.

Four red-listed species were recorded (meadow pipit (*Anthus pratensis*), grey wagtail, oystercatcher (*Haematopus ostralegus*) and snipe (*Gallinago gallinago*)). Meadow pipits were wintering in decent numbers with at least ten present across several dates. One snipe was flushed from the pool at the southern end of the Site on one date. Oystercatchers flew over the Site regularly but weren't using the Site as a feeding ground and instead utilized the nearby football pitches. Grey wagtails were seen feeding in the river on several occasions.

4.2.2.2 Mammals

The fields and woodland at the Site were noted to be utilised by recreational walkers, both with and without dogs, as well as groups of children and young people from local schools. As such, it is difficult to determine whether some of the less trodden paths recorded at the Site, particularly along the hedgerows, originated from wild mammal use or from recreational activities and/or dogs. Due to the high level of vegetation cover, it is likely that signs of mammals, such as hairs, scat and prints, would have been missed during the walkover survey and a precautionary approach has been adopted due to this. However, the habitats at the Site and particularly the woodland habitat along the river corridor are considered suitable and likely to support a variety of mammals, such as badger (*Meles meles*), pine marten (*Martes martes*) and red squirrel (*Sqiurus vulgaris*). Furthermore, otter (*Lutra lutra*) may commute and forage along the Broadmeadow River and also utilise the woodland habitats for shelter. In addition, other small mammals such as pygmy shrew (*Sorex minutus*) and hedgehog

(*Erinaceous europaeus*) are likely to be present within most of the habitats present at the Site.

4.2.3 Other Fauna

Suitable habitats were recorded for common lizard (*Lacerta vivipara*) among the fields and field margins. Additionally, the wetter sections of the drainage ditches may support amphibians, particularly frog (*Rana temporaria*) at the Site. The level of vegetation during the walkover survey was limiting to the observation potential of both of these species A precautionary approach has been adopted as a result of the survey limitations.

4.3 Summary Of Relevant European Sites

The following descriptions of the relevant habitats and species occurring within the European site(s) considered in this NIS have been extracted from the Standard Data Forms (EEA 2023), Site Synopses (NPWS, 2013b, NPWS, 2017) and any supporting documents available for the relevant site(s).

4.3.1 Malahide Estuary SAC

The following descriptions of the Malahide Estuary SAC are extracted from the Site Synopsis (NPWS 2017) for the site:

> "*The outer part of the estuary is mostly cut off from the sea by a large sand spit, known as 'the island'. The outer estuary drains almost completely at low tide, exposing sand and mud flats. There is a large bed of Eelgrass (Dwarf Eelgrass, Zostera noltii, and Narrow-leaved Eelgrass, Z. angustifolia) in the north section of the outer estuary, along with Beaked Tasselweed (Ruppia maritima) and extensive mats of green algae (Enteromorpha spp., Ulva lactuca). Common Cord-grass (Spartina anglica) is also widespread in this sheltered part of the estuary."*

The following description of the Site is extracted from the Conservation Objectives Supporting Document (NPWS 2013a) for the site:

> "*Estuarine sandy mud with Chironomidae and Hediste diversicolor community complex. This complex is recorded at Swords where the Ward River and Broad Meadow River enter the Malahide estuary. The sediment is largely that of sandy mud with silt-clay and very fine sand accounting for between 19.6% to 59.7% and 12.4% to 28.4% of the sediment fractions respectively. The remaining fractions range from 0.8% to 12.5% coarse sand, very coarse sand from 0.4% to 5.1%, medium sand from 1.6% to 27.7% and the fine sand fraction from 8.7% to 21.9%. The proportion of gravel recorded is negligible (<1%)*."

4.3.2 Malahide Estuary SPA

The following descriptions of the Malahide Estuary SPA are extracted from the Site Synopsis (NPWS 2013b) for the site:

> *"This site is of high importance for wintering waterfowl and supports a particularly good diversity of species. It has internationally important populations of Light-bellied Brent Goose (1,104 individuals or 5% of the all-Ireland total) and Black-tailed Godwit (409 individuals or 2.9% of the all-Ireland total) - figures given here and below are mean peaks for the five winters 1995/96-1999/2000. Furthermore, the site supports nationally important populations of an additional 12 species: Great Crested Grebe (63), Shelduck (439), Pintail (58), Goldeneye (215), Red-breasted Merganser (99), Oystercatcher (1,360), Golden Plover (1,843), Grey Plover (201), Knot (915), Dunlin (1,594), Bar-tailed Godwit (156) and Redshank (581). The high numbers of diving ducks reflects the lagoon-type nature of the inner estuary, and this is one of the few sites in eastern Ireland where*

substantial numbers of Goldeneye can be found. A range of other species occurs, including Mute Swan (37), Pochard (36), Ringed Plover (86), Lapwing (1,542), Curlew (548), Greenshank (38) and Turnstone (112).”

The following description of the Site is extracted from the Conservation Objectives Supporting Document (NPWS 2013c) for the site:

“Malahide Estuary is situated in north Co. Dublin, between the towns of Malahide and Swords. The estuary is bisected by a railway viaduct, built in the 1800s, which creates an inner and outer site. The Broadmeadow M1 motorway bridge crosses the inner estuary and covers some saltmarsh habitat. The outer estuary empties almost completely at low tide. The intertidal area is sheltered from the sea by a large sand spit, known as “the Island” which is now mostly converted to golf course. The site also includes a shallow subtidal area at the estuary mouth.”

4.3.3 Qualifying Interests and Conservation Objectives

The QIs/SCIs and their respective conservation objectives for each of the relevant European site(s) are detailed in Table 4 below and Figure 13.

TABLE 4. QUALIFYING INTERESTS (QIS) / SPECIAL CONSERVATION INTERESTS (SCIS) AND THEIR CONSERVATION OBJECTIVES FOR THE RELEVANT EUROPEAN SITES. THE CONSERVATION STATUS OF EACH QI / SCI WAS SOURCED FROM THE RELEVANT STANDARD DATA FORM(S) (SOURCE: EEA (2024)).

QI / SCI (* = priority habitat)	Conservation Status	Conservation Objective
Malahide Estuary SAC (000205)		
Mudflats and sandflats not covered by seawater at low tide [1140]	Good	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC
Salicornia and other annuals colonising mud and sand [1310]	Good	To maintain the favourable conservation condition of Salicornia and other annuals colonising mud and sand in Malahide Estuary SAC
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	Good	To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Malahide Estuary SAC
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	Poor	To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Malahide Estuary SAC
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]	Poor	To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') in Malahide Estuary SAC

QI / SCI (* = priority habitat)	Conservation Status	Conservation Objective
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]	Good	To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Malahide Estuary SAC
Malahide Estuary SPA (004025)		
Great Crested Grebe (*Podiceps cristatus*) [A005]	Good	To maintain the favourable conservation condition of Great Crested Grebe in Malahide Estuary SPA
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	Excellent	To maintain the favourable conservation condition of Light-bellied Brent Goose in Malahide Estuary SPA
Shelduck (*Tadorna tadorna*) [A048]	Excellent	To maintain the favourable conservation condition of Shelduck in Malahide Estuary SPA
Pintail (*Anas acuta*) [A054]	Excellent	To maintain the favourable conservation condition of Pintail in Malahide Estuary SPA
Goldeneye (*Bucephala clangula*) [A067]	Excellent	To maintain the favourable conservation condition of Goldeneye in Malahide Estuary SPA
Red-breasted Merganser (*Mergus serrator*) [A069]	Excellent	To maintain the favourable conservation condition of Red-breasted Merganser in Malahide Estuary SPA
Oystercatcher (*Haematopus ostralegus*) [A130]	Excellent	To maintain the favourable conservation condition of Oystercatcher in Malahide Estuary SPA
Golden Plover (*Pluvialis apricaria*) [A140]	Good	To maintain the favourable conservation condition of Golden Plover in Malahide Estuary SPA
Grey Plover (*Pluvialis squatarola*) [A141]	Excellent	To maintain the favourable conservation condition of Grey Plover in Malahide Estuary SPA
Knot (*Calidris canutus*) [A143]	Excellent	To maintain the favourable conservation condition of Knot in Malahide Estuary SPA
Dunlin (*Calidris alpina*) [A149]	Excellent	To maintain the favourable conservation condition of Dunlin in Malahide Estuary SPA
Black-tailed Godwit (*Limosa limosa*) [A156]	Excellent	To maintain the favourable conservation condition of Black-tailed Godwit in Malahide Estuary SPA

QI / SCI (* = priority habitat)	Conservation Status	Conservation Objective
Bar-tailed Godwit (*Limosa lapponica*) [A157]	Good	To maintain the favourable conservation condition of Bar-tailed Godwit in Malahide Estuary SPA
Redshank (*Tringa totanus*) [A162]	Excellent	To maintain the favourable conservation condition of Redshank in Malahide Estuary SPA
Wetland and Waterbirds [A999]	n/a	To maintain the favourable conservation condition of the wetland habitat in Malahide Estuary SPA

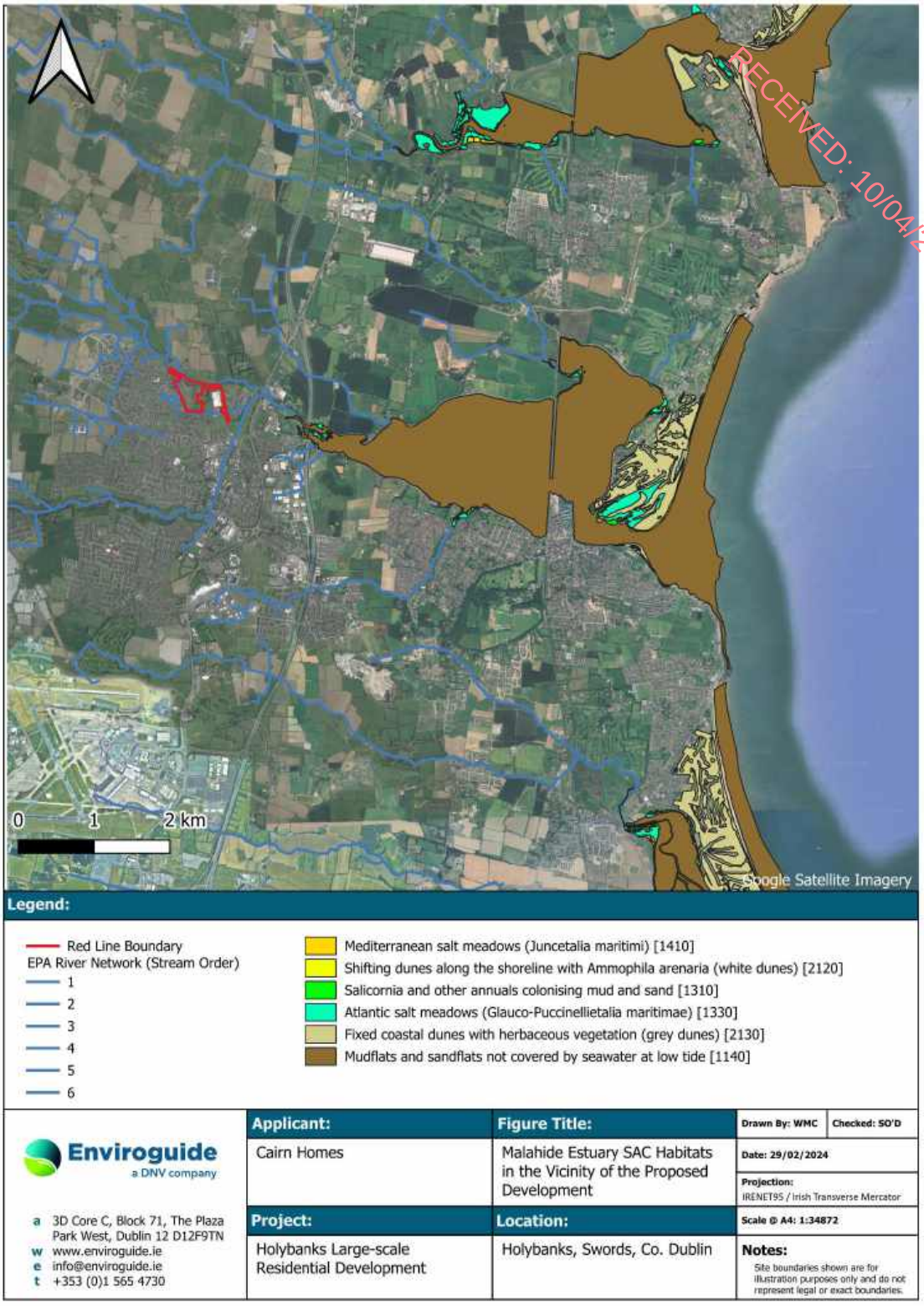

FIGURE 13. MALAHIDE ESTUARY SAC HABITATS IN VICINITY OF THE PROPOSED DEVELOPMENT.

4.4 Impact Prediction

This section follows the S-P-R method as outlined in section 3.5 to identify if and how any of the QIs/SCIs of the relevant European site are linked to the Proposed Development. Once the connections have been identified the potential impacts of the

Proposed Development on the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** in light of their QIs/SCIs are assessed.

For the purposes of objectivity and clarity, mitigation measures **are not considered in the impact prediction.** This includes all measures that will act to limit or eliminate the potential for significant adverse impacts on the relevant European site.

4.4.1 Potential impacts of the Proposed Development on key Species and Habitats

The following elements of the Proposed Development were identified and assessed for their potential to cause likely significant effects on European sites.

Construction Phase (*Estimated duration: 4 years*)

- Uncontrolled releases of silt, sediments and/or other pollutants to air due to earthworks;
- Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies or surface water network;
- Surface water run-off containing silt, sediments and/or other pollutants that discharge into the local groundwater;
- Waste generation during the Construction Phase comprising soils and construction wastes;
- Increased noise, dust and/or vibrations as a result of construction activity;
- Increased lighting in the vicinity as a result of construction activity; and
- Increased human presence and activity as a result of construction activity.

Operational Phase *(Estimated duration: Indefinite)*

- Surface water drainage from the Site of the Proposed Development;
- Foul water from the Proposed Development;
- Increased lighting at the Site and in the vicinity emitted from the Proposed Development; and
- Increased human presence and activity at the Site and in the vicinity as a result of the Proposed Development.

The QIs/SCIs for the relevant European sites are shown on Figure 13 and described in Table 5 below. Descriptions are sourced from the relevant Conservation Objectives and supporting documents (NPWS 2013d, NPWS 2013e), Standard Data Forms (EEA, 2024) as well as the surveys carried out at the Site.

Table 5 below outlines the identified pathways between the Proposed Development and the relevant QIs/SCIs and assesses the potential significant effects of the Proposed Development on these. The assessment outlined below does not consider mitigation measures that will be implemented as part of the Proposed Development, but the nature of mitigation that will be required to eliminate the potential for significant adverse impacts is identified in the table, if any.

TABLE 5. ASSESSMENT OF THE POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT ON THE QIS AND SCIS OF THE RELEVANT EUROPEAN SITES. THOSE QIS/SCIS FOR WHICH NOTABLE IMPACT PATHWAYS WERE IDENTIFIED HAVE BEEN HIGHLIGHTED IN GREEN.

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Malahide Estuary SAC (000205)			
Mudflats and sandflats not covered by seawater at low tide [1140] *Conservation objective:* To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Malahide Estuary SAC:			
Mudflats and sandflats not covered by seawater at low tide are comprised of the intertidal section of the coastline where sands and muds dominate. They are dynamic ecosystems, dependent on the balance of natural accretion and erosion. The fundamental building block of this habitat is sediment ranging from around 1 micron to 2 millimetres.	There is a potential hydrological pathway between the Proposed Development and this habitat via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have a significant effect on the Mudflats and sandflats not covered by seawater at low tide habitat should a severe pollution event occur. **Operational Phase** There are no significant effects foreseen on the Mudflats and sandflats not covered by seawater at low tide habitat as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
***Salicornia* and other annuals colonising mud and sand [1310]** *Conservation objective:* To maintain the favourable conservation condition of *Salicornia* and other annuals colonising mud and sand in Malahide Estuary SAC:			
Salicornia and other annuals colonising mud and sand (1310) is a pioneer saltmarsh community that may occur on muddy sediment seaward of established saltmarsh, or form patches within other saltmarsh communities where the elevation is suitable and there is regular tidal inundation.	This habitat is located at the coastal side of the Malahide viaduct (4.34km east) which renders the hydrological pathway between the Proposed Development and this habitat insignificant, eliminating the possibility for any negative effects on this habitat to occur as a	**Construction Phase and/or Operational Phase** The Proposed Development will not have the potential to cause significant impacts to the *Salicornia* and other annuals colonising mud and sand habitat in this SAC.	**No mitigation required**

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
	result of the Proposed Development.		
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] *Conservation objective:* To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Malahide Estuary SAC:			
Atlantic salt meadows generally occupy the widest part of the saltmarsh gradient. They also contain a distinctive topography with an intricate network of creeks and salt pans occurring on the medium to large-sized saltmarshes. Atlantic salt meadows contain several distinctive zones that are related to elevation and submergence frequency.	There is a potential hydrological pathway between the Proposed Development and this habitat via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have a significant effect on the Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) habitat should a severe pollution event occur. **Operational Phase** There are no significant effects foreseen on the Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) habitat as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Mediterranean salt meadows (*Juncetalia maritimi*) [1410] *Conservation objective:* To maintain the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Malahide Estuary SAC:			
Mediterranean salt meadows occupy the upper zone of saltmarshes and usually occur adjacent to the boundary with terrestrial habitats. They are widespread on the Irish coastline; however, they are not as extensive as Atlantic salt meadows (1330).	This habitat is located at the coastal side of the Malahide viaduct (4.34km east) which renders the hydrological pathway between the Proposed Development and this habitat insignificant, eliminating the possibility for any negative effects on this habitat to occur as a result of the Proposed Development.	**Construction Phase and/or Operational Phase** The Proposed Development will not have the potential to cause significant impacts to the Mediterranean salt meadows (*Juncetalia maritimi*) habitat in this SAC.	**No mitigation required**

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] *Conservation objective:* To restore the favourable conservation condition of Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) in Malahide Estuary SAC:			
2120 Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) are dunes which are partly stabilised and are dominated by *Ammophila arenaria*. They tend to be taller than 2110 Embryonic shifting dunes and form further inland from these. The dunes are actively created by *Ammophila arenaria*, which traps sand, and vegetation cover is incomplete (Fossitt, 2000).	This habitat is located at the coastal side of the Malahide viaduct (4.34km east) which renders the hydrological pathway between the Proposed Development and this habitat insignificant, eliminating the possibility for any negative effects on this habitat to occur as a result of the Proposed Development.	**Construction Phase and/or Operational Phase** The Proposed Development will not have the potential to cause significant impacts to the Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) habitat in this SAC.	**No mitigation required**
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] *Conservation objective:* To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation (grey dunes) in Malahide Estuary SAC:			
2140 Decalcified fixed dunes with *Empetrum nigrum* are either found on the landward edge of dune systems where the surface layers of sand have been leached of their calcium content, or where sand has become fixed over siliceous rock. Typical species include *Empetrum nigrum*, *Calluna vulgaris*, *Thymus polytrichus*, *Lotus corniculatus*, *Carex panicea*, and the sand binding species *Carex arenaria* and *Ammophila arenaria*. 2140 is distinguished from 2150 by the presence of *Empetrum nigrum*, which is usually the most frequent dwarf shrub, within a more open dune heath community.	This habitat is located at the coastal side of the Malahide viaduct (4.34km east) which renders the hydrological pathway between the Proposed Development and this habitat insignificant, eliminating the possibility for any negative effects on this habitat to occur as a result of the Proposed Development.	**Construction Phase and/or Operational Phase** The Proposed Development will not have the potential to cause significant impacts to the Fixed coastal dunes with herbaceous vegetation (grey dunes) habitat in this SAC.	**No mitigation required**

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Malahide Estuary SPA (004025)			
Great Crested Grebe (*Podiceps cristatus*) [A005] *Conservation objective:* To maintain the favourable conservation condition of Great Crested Grebe (*Podiceps cristatus*) in Malahide Estuary SPA:			
In 2004 the population was reported as 1,000 – 2,499 pairs (BirdLife International 2004). This marked an increase from the last national survey of Great Crested Grebes in Ireland (Preston 1976) which estimated a population of 758 pairs. Perry (2000) however considered this to be an underestimate of the true population (Perry 2000). Although the short term range has increased (section 5) it is considered that the 2004 BirdLife International population estimate remains appropriate for this reporting period.	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] *Conservation objective:* To maintain the favourable conservation condition of Light-bellied Brent Goose (*Branta bernicla hrota*) in Malahide Estuary SPA:			
The estimated population of 25100 individuals is based on a series of specific censuses (see Crowe & Holt, 2013).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Shelduck (*Tadorna tadorna*) [A048] *Conservation objective:* To maintain the favourable conservation condition of Shelduck (*Tadorna tadorna*) in Malahide Estuary SPA:			

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Gibbons et al (1991) estimated the all-Ireland breeding population at 1,100 pairs. Using the proportion of the occupied squares in the Republic compared to those exclusively occurring in Northern Ireland a scaled population estimate of 872 breeding pairs in 1991 for the Republic is calculated. Relying on the range increase data sourced from the recent Bird Atlas (Balmer et al 2013) and assuming that the breeding density has remained unchanged since 1991 then a contemporary population of 958 breeding pairs is estimated. As all records (i.e. confirmed, probable and possible) were used in this analysis the presence of non-breeding immature birds in suitable breeding habitat may obscure, to some degree, the abundance of the true breeding population.	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Pintail (*Anas acuta*) [A054] *Conservation objective:* To maintain the favourable conservation condition of Pintail (*Anas acuta*) in Malahide Estuary SPA:			
The estimated population of 1280 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
Goldeneye (*Bucephala clangula*) [A067] *Conservation objective:* To maintain the favourable conservation condition of Goldeneye (*Bucephala clangula*) in Malahide Estuary SPA:			
The estimated population of 1940 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS). This estimate is to be treated as a conservative one on account of the relatively poorer I-WeBS coverage of some of the areas that this species is distributed over.	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Red-breasted Merganser (*Mergus serrator*) [A069] *Conservation objective:* To maintain the favourable conservation condition of Red-breasted Merganser (*Mergus serrator*) in Malahide Estuary SPA:			
The estimated population of 1550 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Oystercatcher (*Haematopus ostralegus*) [A130] *Conservation objective:* To maintain the favourable conservation condition of Oystercatcher (*Haematopus ostralegus*) in Malahide Estuary SPA:			

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
The estimated population of 45480 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Golden Plover (*Pluvialis apricaria*) [A140] *Conservation objective:* To maintain the favourable conservation condition of Golden Plover (*Pluvialis apricaria*) in Malahide Estuary SPA:			
The estimated population of 99870 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS). This estimate is to be treated as a conservative one on account of the relatively poorer I-WeBS coverage of some of the areas that this species is distributed over.	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Grey Plover (*Pluvialis squatarola*) [A141] *Conservation objective:* To maintain the favourable conservation condition of Grey Plover (*Pluvialis squatarola*) in Malahide Estuary SPA:			
The estimated population of 2850 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below)

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
		indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Operational Phase:** No mitigation required
Knot (*Calidris canutus*) [A143] *Conservation objective:* To maintain the favourable conservation condition of Knot (*Calidris canutus*) in Malahide Estuary SPA:			
The estimated population of 22120 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Dunlin (*Calidris alpina*) [A149] *Conservation objective:* To maintain the favourable conservation condition of Dunlin (*Calidris alpina*) in Malahide Estuary SPA:			
The estimated population of 44380 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase**	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
		There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	
Black-tailed Godwit (*Limosa limosa*) [A156] *Conservation objective:* To maintain the favourable conservation condition of Black-tailed Godwit (*Limosa limosa*) in Malahide Estuary SPA:			
The estimated population of 18080 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Bar-tailed Godwit (*Limosa lapponica*) [A157] *Conservation objective:* To maintain the favourable conservation condition of Bar-tailed Godwit (*Limosa lapponica*) in Malahide Estuary SPA:			
The estimated population of 11890 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Redshank (*Tringa totanus*) [A162] *Conservation objective:* To maintain the favourable conservation condition of Redshank (*Tringa totanus*) in Malahide Estuary SPA:			

Description	Impact Pathway(s)	Assessment of likely significant effects	Mitigation Requirement
The estimated population of 19400 individuals is based on a mean of peak counts with imputation for the overwintering period of 2006/07 to 2010/11 that was collected as part of the Irish Wetland Bird Survey (I-WeBS).	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have an indirect significant effect on forage availability of this SCI species. **Operational Phase** There are no significant effects foreseen on this SCI species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required
Wetland and Waterbirds [A999] *Conservation objective:* To maintain the favourable conservation condition of Wetland and Waterbirds in Malahide Estuary SPA:			
Wetland and waterbirds habitat encompasses any habitat which SCI species may use for feeding, nesting or roosting.	There is a potential hydrological pathway between the Proposed Development and the Malahide Estuary SPA via the Broadmeadow Water.	**Construction Phase** In the absence of surface water mitigation measures, it cannot be excluded that surface run-off/discharges arising from the Proposed Development could have a significant effect on Wetland and Waterbirds habitats and species. **Operational Phase** There are no significant effects foreseen on Wetland and Waterbirds habitats and species as a result of the Proposed Development during Operational Phase.	**Construction Phase** Standard best practice measures Surface water mitigation measures (see section 4.5.2.1 below) **Operational Phase:** No mitigation required

4.4.2 Potential for In-combination Effects

4.4.2.1 Existing Planning Permissions

A search of planning applications located within a 500m radius of the Site of the Proposed Development was conducted using online planning resources such as the National Planning Application Database (NPAD) (MyPlan.ie) and Fingal County Council Planning Applications online map (FCC 2024). Any planning applications listed as granted or decision pending from within the last five years were assessed for their potential to act in-combination with the Proposed Development and cause likely significant effects on the relevant European sites. Long-term developments granted outside of this time period were also considered where applicable.

The larger developments within the vicinity of the Site are listed in Table 6 below:

TABLE 6. GRANTED AND PENDING DEVELOPMENT APPLICATIONS WITHIN 500 M OF THE PROPOSED DEVELOPMENT. LOCATION AND DISTANCE GIVEN IS RELATIVE TO THE PROPOSED DEVELOPMENT.

Planning Reference	Planning Authority	Status	Location
F21A/0476	Fingal CoCo	Granted	Balheary Road, Swords, Co Dublin
Development Description A proposed stormwater storage tank and overflow outfall gravity sewer to the Broadmeadow River with associated manholes, proposed vehicular/service access onto Balheary Road; landscaping; boundary treatments; and all associated engineering and site works necessary to facilitate the development. A Natura Impact Statement (NIS) has been prepared and is submitted to the Planning Authority with the application. **Potential for In-combination effects** An NIS has been prepared ensuring measures will be installed to prevent impacts on nearby Natura 2000 sites. This will eradicate the potential for in-combination effects with the Proposed Development.			
F22A/0365	Fingal CoCo	Granted	All in or in the vicinity of the townlands of Mainscourt, Roscall, Richardstown, Gracediew, Brownstown, Magillstown, Skidoo, Dollards, Balheary, Newtown, broadmeadow, Balheary Demesne, Seatown West, Swords Demesne, Mantua, Greenfields, Seatown East.
Development Description The development of grid connection infrastructure to connect the approved solar photovoltaic ('PV') energy development on lands at Mainscourt, Ballyboghill, Co. Dublin under Register Reference F17A/0340, PL06F.249174 to the ESB Mountgorry 38kV Substation, Swords Business Park, Swords, Co. Dublin, comprising the laying of. 9,470 metres of 38kV underground electricity cables in ducts and associated infrastructure substantially under public roads and beneath the Ward River Bridge, Gracedieu Bridge and the Broadmeadow River by means of horizontal directional drilling. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the planning application. **Potential for In-combination effects** An NIS has been prepared ensuring measures will be installed to prevent impacts on nearby Natura 2000 sites. This will eradicate the potential for in-combination effects with the Proposed Development.			

4.4.2.2 Relevant Policies and Plans

The local policies and plans detailed in section 2.2 above were reviewed and considered for possible in-combination effects with the Proposed Development. Each of these plans has undergone AA, and where potential for likely significant effects has been identified (e.g., in the case of the Fingal Development Plan), an NIS has been prepared which identifies appropriate mitigation. As such, it is considered that the plans and policies listed will not result in in-combination effects with the Proposed Development. The Fingal Development Plan 2023-2029 has directly addressed the protection of European sites and biodiversity through specific objectives. The above listed plans are not being relied upon to rule out potential significant effects on European sites.

4.5 Avoidance and Mitigation Measures

The following sections outline the avoidance and mitigation measures identified to eliminate the potential for significant adverse impacts on the relevant European sites. Once the recommended measures outlined in the following sections are implemented in full, no adverse impacts on the relevant European sites or their QIs/SCIs are anticipated as a result of the Proposed Development. These mitigation measures will be included in a Construction and Environmental Management Plan (CEMP) (Waterman Moylan, 2024) that will be prepared prior to commencing works by the appointed construction contractor.

4.5.1 Summary of Potential Effects

Potential significant effects arising from the **Construction Phase** include:

- Water quality impacts on Malahide Estuary SAC and Malahide Estuary SPA arising from surface water run-off during the Construction/Infill Phase, in particular during flooding events.

The following mitigation and enhancement measures will ensure no significant effects arise on designated sites as a result of the Proposed Development, either alone or in-combination with other projects.

4.5.2 Construction Phase

4.5.2.1 Mitigation 1: Water Quality Protection

The following applies to all stages of the Construction Phase for the Proposed Development unless specific measures have been identified. As it has been identified that the Proposed Development could potentially affect SCI/QI species associated with the aforementioned nearby designated sites during the Construction Phase as a result of water quality impacts, the mitigation measures listed in the following sections will be undertaken.

4.5.2.1.1 Construction Phase Best Practice

The following measures, designed to protect surface water quality, will serve to prevent any negative effects occurring in the **Malahide Estuary SAC (000205)** and **Malahide Estuary SPA (004025)** as a result of Construction Phase surface water discharges from the Site. These mitigation measures will treat the source (e.g., refuelling of plant

to be carried out at designated refuelling station locations on Site) or remove the pathway (e.g., no release of wastewater generated on-Site to ground, drains or adjacent watercourses during the Construction Phase).

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990.

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. Procedures and relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors;
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association CIRIA C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C648: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

In addition, standard best practice measures will be implemented throughout the Construction Phase to ensure no construction-related pollutants are discharged into the surface water or groundwater at and surrounding the Site, that could subsequently be transferred by same to the SACs/SPAs. The below presents the standard best practice measures that will be implemented on Site during the Construction Phase of the Proposed Development in addition to the measures outlined in the Construction and Environmental Management Plan (CEMP) (Waterman Moylan, 2024) accompanying this application:

- Silt fencing will be used along any streams and/or drainage ditches on Site which may have a hydrological link to nearby designated sites.
- Any drains or sewers, where present, which could act as pathways for contamination from the Site will be blocked where required.
- Location of stilling/settling ponds will take into account groundwater vulnerability at the Site and will be located in suitable areas and at distance from any watercourses hydrologically connected to nearby designated sites.
- Discharge water generated during placement of concrete will be stored and removed off Site for treatment and disposal.
- There will be no washing out of any concrete trucks on Site. Any washing of chutes will be carefully collected in a designated container which will be subsequently sent off-site for compliant waste management.
- Specific areas for storage, delivery, loading/unloading of materials will be designated, which will have appropriate containment/spill protection measures

where required. These storage areas will be located in suitable areas and at distance from any watercourses hydrologically connected to nearby designated sites.

- Leachate generation from stockpiles or waste receptacles will be prevented by using waterproof covers.
- Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.
- Appropriate bunding, storage and signage arrangements for all deleterious substances will be used.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans will be included within the Contractor's CEMP and the details of which will be communicated, resourced and implemented for the duration of the works.
- Control measures and spill clean-up equipment adequate to treat spills at the Site will be available and staff will be trained and experienced in using said equipment.
- A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be available at all times and shall include as a minimum: valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.
- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- A plan for dealing with any unknown drains or services which may be encountered during the works will be set out and implemented.
- Any surface water inflow into the main areas of excavation will be minimised where possible.

4.5.2.1.2 Maintenance of Plant and Machinery

- All plant and equipment will be regularly cleaned and properly maintained.
- There will be no washing out of any concrete trucks on Site.
- Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather and with impermeable pouring mats laid down where possible.

4.5.2.1.3 Building/Road Network and Services

- Constructing buildings and roads above flood level to ensure that backflows through the surface water outfalls will not occur.
- The Proposed Development's road network will be finished with tarmac or asphalt surface which will discharge run-off to a piped drainage system, and surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.
- All car parking and refuel areas at the Site will be located on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.

4.5.2.1.4 Earthworks Mitigation

The proposed earthworks mitigation measures for the Construction Phase includes:

- A street sweeper will attend Site regularly to clean the road when there are truck movements in and out of the Site;
- Hard surface roads will be regularly swept to remove mud and aggregate materials from their surface;
- Public roads outside the Site will be regularly inspected for cleanliness, and cleaned as necessary;
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind; and
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods.

4.5.2.1.5 Storage and Use of Fuels, Oils, and Chemicals

- Appropriate bunding, storage and signage arrangements for all deleterious substances (e.g., fuels, oils, and chemicals) will be used.
- Fuels, lubricants, and hydraulic fluids for equipment used on the construction Site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005).
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or recycling.
- Diesel tanks, used to store fuel for the various items of machinery, will be self-contained and double-walled.
- Spillage and leaks of oil from cars parked in the Development during the Construction Phase are unavoidable. To reduce the potential impacts, oil interceptors will be incorporated into the Site drainage design.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Site and properly disposed of.
- Refuelling will be carried out from tanks or delivery vehicles on a designated impermeable surface and will not be left unattended.
- Plant will not be left running when not in use (i.e., no idling) and plant with dust arrestment equipment will be used where practical.

4.5.2.1.6 Spill/Emergency Response Plans

Robust and appropriate Spill Response Plan and Site Environmental Emergency Plans (SEP) will be implemented for the duration of the works:

- Identifying fuel storage and refuelling locations on designated areas within the compound, away from drainage ditches/waterbodies (where present), and on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.
- Identifying spill kit locations (spill kits will be required for each piece of heavy equipment (e.g., excavators, loaders, trucks, etc.,) which will be at least 21L drum size each with spill pads, sorbent, small boom, plastic garbage bag and gloves).

- A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on Site.
- Staff will be trained and experienced in using appropriate control measures and spill kits on-Site, and will be familiar with the location of all spill kit locations and the Site layout.

A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be available at all times and shall include as a minimum:

- Valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;
- Emergency response procedures/precautions for each material;
- PPE is required when using the material.

4.5.2.1.7 Waste Management and Disposal

Waste management and disposal will comprise the following:

- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for Site personnel. All associated waste will be removed from the Proposed Development Site by a licenced waste disposal contractor.
- Mixer washings are not to be discharged into ground or drainage ditches and will be collected and disposed of at a suitably licenced facility.

In addition, a minimal waste approach of reduction, reuse and recycling will be utilized where practicable/appropriate. Where this cannot be carried out, all wastes will be disposed of at licenced waste facilities.

4.6 Monitoring

4.6.1 Construction Phase

During the Construction Phase, the following monitoring will be carried out by the construction contractor to ensure the implemented mitigation measures are maintained effectively:

- Surface/groundwater protection measures (Mitigation 1) will be checked weekly by the site contractor to ensure they remain effective, and more often during moderate to heavy rainfall events as appropriate.

5 CONCLUSION

This Natura Impact Statement details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential direct and indirect impacts of the Proposed Development planning application at Swords, Co. Dublin, on the following European sites:

- Malahide Estuary SAC (000205)
- Malahide Estuary SPA (004025)

The above sites were identified by a screening exercise that assessed likely significant effects of a range of impacts that have the potential to arise from the Proposed Development. The Appropriate Assessment investigated the potential direct and indirect effects of the proposed works, both during construction/infill and operation, on the integrity and qualifying interests of the above European sites, alone and in combination with other plans and projects, taking into account the site's structure, function and conservation objectives.

Where potentially significant effects were identified, a range of mitigation and avoidance measures have been suggested to avoid them. This NIS has concluded that, once the avoidance and mitigation measures are implemented as proposed, the Proposed Development will not have an adverse effect on the integrity of the above European site(s), individually or in combination with other plans and projects. Where applicable, a suite of monitoring surveys have been proposed to confirm the efficacy of said measures in relation to ensuring no adverse impacts on the habitats of the relevant European sites have occurred.

As a result of the complete, precise and definitive findings in of this NIS, it has been concluded, beyond reasonable scientific doubt, that the Proposed Development will have no significant adverse effects on the QIs, SCIs and on the integrity and extent of **Malahide Estuary SAC (000205)** or **Malahide Estuary SPA (004025)**. Accordingly, the Proposed Development will not adversely affect the integrity of any relevant European site.

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Appendix 6.1

Site Investigation Report, October 2017 (Report Number: 5415)

No Change

Appendix 6.2

Additional Site Investigation Report, April 2019 (Report Number: 5588)

No Change

Appendix 6.3

Site Investigation Report, October 2020 (Report Number: 5769)

No Change

Appendix 6.4

Construction Environmental Management Plan

Slight Change

Construction and Environmental Management Plan

Proposed LRD at Holybanks, Swords, Co. Dublin

April 2025

Waterman Moylan Consulting Engineers Limited

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RECEIVED: 10/04/2025

Client Name: Cairn Homes Properties Ltd
Document Reference: 17-088r.014 Construction and Environmental Management Plan
Project Number: 17-088

Quality Assurance – Approval Status

This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
1	Sept '24	L. Mugo	L. Ruize.	E. Caulwell
2	Apr' 25	L. Mugo	E. Caulwell	E. Caulwell

Comments

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

Content

1. Introduction

Waterman Moylan has been appointed by Cairn Homes Properties Ltd. to prepare a Construction and Environmental Management Plan (CEMP) for a proposed development of their lands at Holybanks, Swords, Co. Dublin.

This report has been prepared in response to a Further Information Request (FIR) received by Fingal County Council on 26/11/2024, planning register reference number, Ref: LRD0018/SE.

Two development options are proposed.

TOWNHOUSE OPTION
The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 132 no. houses and 508 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin road / R125 Seatown West Roundabout.

DUPLEX OPTION
The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 116 no. houses and 524no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds, along with a creche and commercial unit. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin road / R125 Seatown West Roundabout.

The following Construction and Environmental Management Plan applies to both proposed options.

The plan sets out typical arrangements and measures which may be undertaken during the construction phase of the project to mitigate and minimise disruption/disturbance to the area around the site. The purpose of this report is to summarise the possible impacts and measures to be implemented and to guide the Contractor who will be required to develop and implement the Construction and Environmental Management Plan on site.

Additionally, the report sets out to demonstrate how pollution of watercourses on the environment and surrounding area during and after the construction period will be prevented and/or mitigated. This plan details the implementation of measures in accordance with Environmental plans and Statements specified in Section 3 of this report.

This Construction and Environmental Management Plan (CEMP) is indicative only and should not be construed as representing the exact method or sequence in which the construction works shall be carried out.

As is normal practice, the Main Contractor for the project is responsible for the method in which the demolition and construction works are carried out and to ensure that best practices and all legal obligations including Local Authority requirements and Health and Safety legislation are complied with. The main contractor is also responsible for the design and installation of all temporary works required to complete the permanent works. This plan can be used by the Main Contractor to develop their final Construction Management Plan. The Applicant reserves the right to deviate from the contents of this report, while still complying with all relevant Local Authority requirements and legislation.

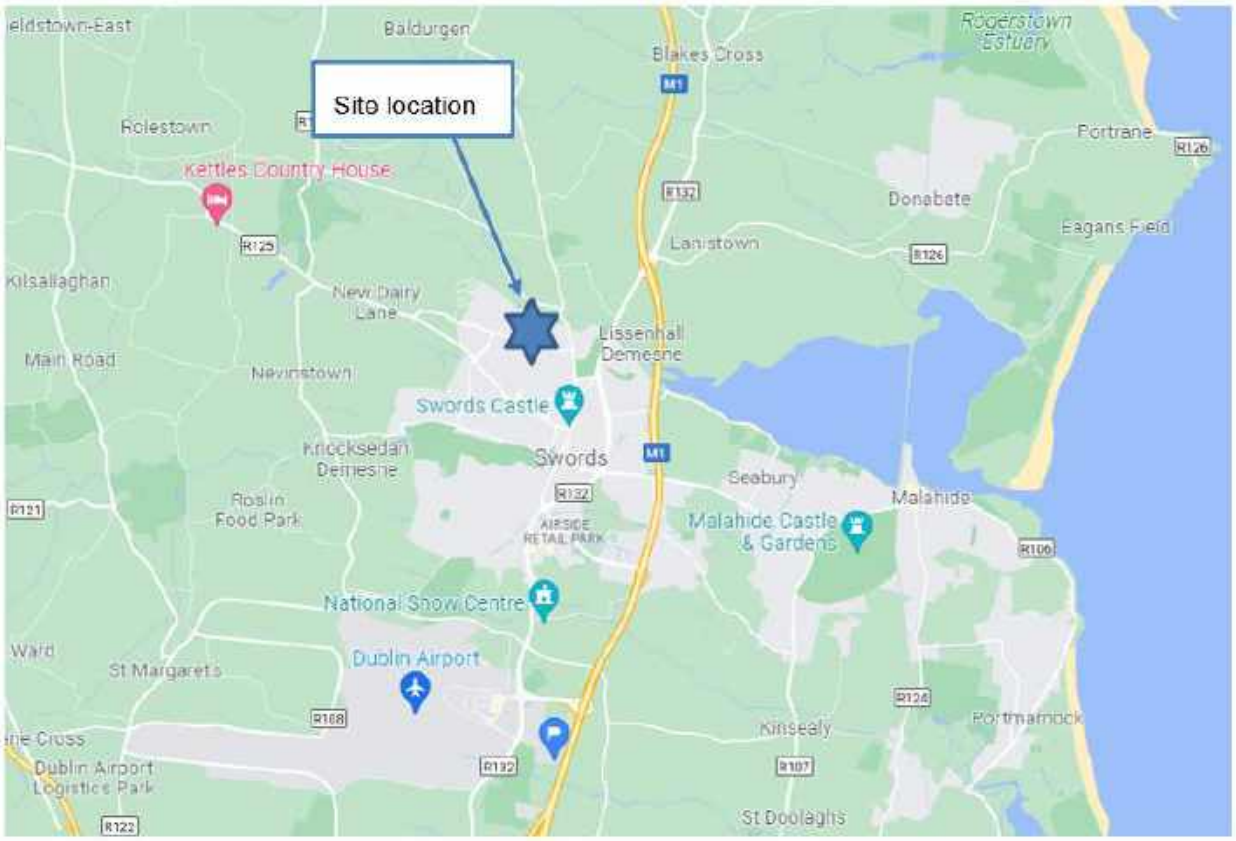
2. Site Location and Description

2.1 Site Location

The site is in Swords, Co. Dublin. The site is bound by Glen Ellan Road to the south, Jugback Lane/Terrace to the west, the former Celestica factory site to the east and the Broadmeadow River to the north.

Swords Celtic Football Club and its associated sports grounds are located to the north, on the opposite side of the Broadmeadow River. The Swords Business Campus is also located to the east of the site on the opposite side of Balheary Road. The site location is shown in Figure 2-1 below.

Figure 2-1 Site Location



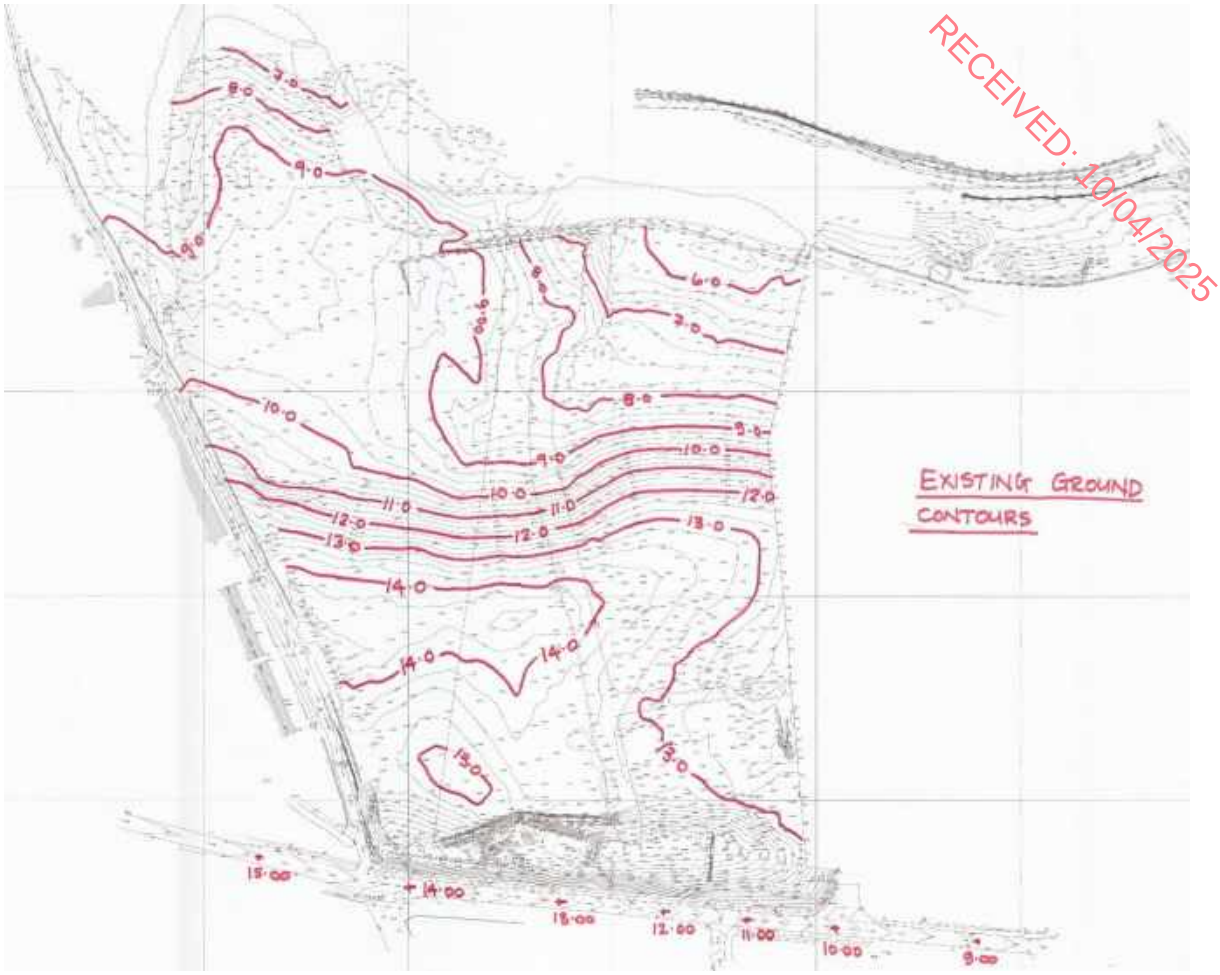
2.2 Existing Site

The overall site area is approximately 13.57ha. The site is currently greenfield as shown in Figure 2-2 below.

Figure 2-2 Site Location

The site generally falls from south to north towards the Broadmeadow River. The ground levels to the southwest are in the order of 14.0m falling to 5.6m at the northeast. See Figure 2-3 illustrating the existing ground contours.

Figure 2-3 Existing Ground Contours



2.3 Proposed Construction Works

The proposed work will consist of the following:

- Site preparation;
- Erection of security fencing/perimeter fencing;
- Setting up a secure site compound including wash down area;
- Site clearance including topsoil stripping;
- Construction of infrastructure including access road, cycle paths, footpaths, drainage and services;
- Provision of road upgrades and pedestrian links;
- Construction of 640 no. residential units comprising a mix of housing typologies, duplexes and apartments along with an ancillary childcare facility (516 sq.m)

3. Surface Water Impacts

As mentioned above, the subject site drains to the Broadmeadow river which flows through the Malahide Estuary, a Special Area of Conservation (SAC 000205) and Special Protection Area (SPA 4025). A Natura Impact Statement carried out by Enviroguide Consulting is submitted under a different cover. Protection of the watercourse during the construction stage of the subject development is required in order to avoid any negative impact to Natura 2000 sites. Additionally, retained trees and hedgerows on-site shall also be protected. Temporary measures will be put in place to remove sediments, oils and pollutants.

Surface water run-off from surface construction activities has the potential to become contaminated. The main contaminants arising from construction activities include:

- Suspended solids: arising from ground disturbance and excavation;
- Hydrocarbons: accidental spillage from construction plant and storage depots;
- Faecal coliforms: contamination from coliforms can arise if there is inadequate containment and treatment of onsite toilet and washing facilities; and
- Concrete/cementitious products: arising from construction materials.

These pollutants pose a temporary risk to surface water quality for the duration of the project if not properly contained and managed.

4. Mitigation Measures

The following Mitigation Measures are to address potential impacts to water quality and are required to protect the River Broadmeadow and subsequently the Malahide Estuary located downstream of the river. All works will be undertaken with reference to the following guidelines:

- CIRIA C532: Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters-Williams et al., 2001);
- CIRIA C692: Environmental Good Practice on Site, (Audus et al., 2010)
- BPGCS005: Oil Storage Guidelines;
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Technical Guidance (Murnane et al., 2006a)
- CIRIA C648: Control of Water Pollution from Linear Construction Projects: Site Guide (Murnane et al., 2006a)
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI 2016)
- Guidelines for Planning Authorities – Architectural Heritage Protection – Guidance on Part IV of the Planning and Development Act 2000. (Part 2, Chapter 7) and ICOMOS Principles.
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Water, Inland Fisheries Ireland (IFI, 2016)

The mitigation measures outlined in the report are in keeping with those outlined in the biodiversity chapter of the EIAR/NIS, however, any additional measures identified as necessary in either of these reports shall be incorporated into the CEMP by the contractor before commencing work on site. 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.

The schedule of mitigation presented within Table 1 summarises measures that will be undertaken to reduce impacts on ecological receptors within the zone of influence of the proposed development.

Table 1 Schedule of Surface Water Mitigation Measures

No.	Risk	Possible Impact	Mitigation	Result of Mitigation
1	Hydrocarbons from carparking area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Designated parking at least 50m from any watercourse.	Ensures no soil disturbance or hydrocarbons leak near aquatic zone
2	Pollutants from site compound areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	The site compound will be located at least 50m from any watercourse.	Prevents pollution of the aquatic zone from toxic pollutants

3	Pollutants from material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Fuels, oils, greases and other potentially polluting chemicals will be stored in bunded compounds at the Contractor's compound or a location at least 50m from any body of water. Bunds are to be provided with 110% capacity of the storage container. Spill kits will be kept on-site at all times and all staff trained in their appropriate use. Method statements for dealing with accidental spillages will be provided by the Contractor for review by the Employer's Representative.	Prevents contamination of aquatic zone by toxic pollutants
4	Concrete/cementitious materials entering the watercourse from washdown.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	A designated wash down area within the Contractor's compound will be used for cleaning of any equipment or plant, with the safe disposal of any contaminated water.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site
4	Concrete/cementitious materials entering the watercourse from concrete pours.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Pouring of cementitious materials will be carried out in the dry.	Prevents contamination of aquatic zone by suspended solids or pollutants, ensures invasive species material is not transported off-site
5	Leaching of contaminated soil into groundwater.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Spill kits will contain 10 hr terrestrial oil booms (80mm diameter x 1000mm) and a plastic sheet, upon which contaminated soil can be placed to prevent leaching to groundwater	Prevents contamination of aquatic zone by petrochemicals
6	Pollutants from equipment storage/refuelling area entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Any refuelling and maintenance of equipment will be done at designated bunded areas with full attendance of plant operative(s) within contained areas at least 50m from any watercourse	Prevents contamination of aquatic zone by petrochemicals
7	Runoff from exposed work areas and excavated material storage areas entering the watercourse.	Water quality impacts Reduction in habitat quality Mortality of aquatic key ecological receptors/qualifying interests	Contractor to prepare a site plan showing the location of all surface water drainage lines and proposed discharge points to the sewer. The plan will include the location of all surface water protection measures, including monitoring points and treatment facilities.	Prevents contamination of aquatic zone by suspended solids or pollutants.

5. Construction & Demolition Waste Management Plan

An Operational Waste & Recycling Management Plan (OWRMP) and a Resource & Waste Management Plan (RWMP) have been prepared by Traynor Environmental Ltd. and are available under a separate cover.

6. Management of Environmental Impacts

6.1 Roles and Responsibilities

6.1.1 Main Contractor

The main Contractor will have overall responsibility for the implementation of the project Construction Environmental Management (CEMP) during the construction phase. The appointed person from the Main Contractors team will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the CEMP. At the operational level, a designated person from each subcontractor on the site shall be assigned the direct responsibility to ensure that the operations stated in the CEMP are performed on an ongoing basis.

Copies of the CEMP will be made available to all relevant personnel on-site. All site personnel and sub-contractors will be instructed about the objectives of the CEMP and informed of the responsibilities which fall upon them because of its provisions.

The responsibilities of the appointed person will be as follows;

- Updating the CEMP as necessary to reflect activities on site.
- Advise site management (including, but not limited to, the site Construction Manager) on environmental matters;
- Ensure pre-construction checks for protected species, if any, are undertaken;
- Review method statement of the sub-contractors to ensure that it incorporates all aspects of CEMP
- Provide toolbox talks and other training, and ensure understanding by all involved of all mitigation measures;
- Assess the effectiveness of mitigation, check the weather forecast and site conditions where trigger levels are required;
- Ensure adherence to the specific measures listed in the Planning Conditions;
- Provide advice on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce;
- Investigate incidents of significant, potential or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence; and,
- Be responsible for maintaining all environmental-related documentation.
- Ensure plant suggested is environmentally suited to the task in hand; and
- Coordinate environmental planning of the construction activities to comply with environmental authorities' requirements and with minimal risk to the environment. Give contractors precise instructions as to their responsibility to ensure correct working methods where the risk of environmental damage exists.

6.1.2 Construction Waste Manager

A Construction Waste Manager shall be appointed from the Contractor's Staff and have overall responsibility for the implementation of the project Waste Management Plan (WMP) during the construction phase. The Construction Waste Manager will be appropriately trained and assigned the authority to instruct all site personnel to comply with the specific provisions of the WMP. At the operational level, a designated person from the main contractor and each subcontractor on the site shall be assigned the direct responsibility to ensure that the operations stated in the WMP are performed on an ongoing basis.

Copies of the Waste Management Plan will be made available to all relevant personnel on-site. All site personnel and sub-contractors will be instructed about the objectives of the Waste Management Plan and informed of the responsibilities which fall upon them as a consequence of its provisions. Where source segregation, selective demolition and material reuse techniques apply, each member of staff will be given

instructions on how to comply with the Waste Management Plan. Posters will be designed to reinforce the key messages within the Waste Management Plan and will be displayed prominently for the benefit of site staff.

6.1.3 Environmental Officer

The Environmental Officer will be responsible for, but not limited to, the following activities:

- Ensuring that the requirements of the CEMP are developed and environmental system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements;
- Reviewing the Environmental responsibilities of other managed Contractors in scoping their work and during Contract execution;
- To ensure that advice, guidance and instruction on all CEMP matters are provided to all their managers, employees, construction contractors and visitors on-site;
- Report to the Construction manager on the environmental performance of the Line Management, Supervisory Staff, Employees and Contractors; and,
- Advise site management (including, but not limited to, the site Construction Manager) on environmental matters.

6.1.4 Project Environmental Consultant

The Project Environmental Consultant will be responsible for, but not limited to, the following activities:

- Preparation of the CEMP, environmental control plans, supporting procedures;
- Advise site management (including, but not limited to, the site Construction Manager) on environmental matters;
- Ensure adherence to the specific measures listed in the Planning Conditions and in the Natura Impact Statement (NIS) Mitigation matters;
- Provide advice on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce;
- Investigate incidents of significant, potential or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence; and,
- Be responsible for maintaining all environmental-related documentation.

6.1.5 Project Ecologist

The Project Ecologist is required to:

- Undertake pre-construction checks for protected species
- Review method statement of the contractor to ensure that it incorporates all aspects of CEMP
- Provide toolbox talks and other training, and ensure understanding by all involved of all mitigation measures
- Assess the effectiveness of mitigation, check the weather forecast and site conditions where trigger levels are required
- Check for adequacy of infiltration where water is being pumped

6.1.6 Site Supervisor

Site Supervisors are required to:

- Read, understand and implement the CEMP;
- Know the broad requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance. Where necessary seek the advice of the Environmental Officer;

- Ensure that the environmental matters are taken into account when considering contractors' construction methods and materials at all stages;
- Be aware of any potential environmental risks relating to the site, plant or materials to be used on the premises and bring these to the notice of the appropriate management;
- Ensure plant suggested is environmentally suited to the task in hand;
- Coordinate environmental planning of the construction activities to comply with environmental authorities requirements and with minimal risk to the environment. Give contractors precise instructions as to their responsibility to ensure correct working methods where the risk of environmental damage exists;
- Where appropriate, ensure Contractors method statements include correct waste disposal methods;
- Be aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management

6.1.7 Site Personnel

All Contractors, and other site personnel, on the project, will adhere to the following principal duties and responsibilities:

- To co-operate with the construction management team and the Environmental Officer in the implementation and development of the CEMP at the site;
- To conduct all their activities in a manner consistent with regulatory and best environmental practice;
- To participate in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site; and,
- Adhere to the requirements of the site environmental rules.

6.2 Hours of Working

Typical working hours for the site would be 08.00 to 19.00 Monday to Friday and 08.00 to 14.00 Saturday. No Sunday work will generally be permitted. The above working hours are typical; however, special construction operations may need to be carried out outside these hours to minimise disruption to the surrounding area.

Weather restrictions may apply, i.e. no cement pouring during heavy rainfall. To be determined by the project ecologist.

6.3 Pre-Construction Plan

6.3.1 General Set up and Pre-Commencement Measures

The following measures will be carried out by the Main Contractor:

1. A full condition survey of the public infrastructure that will be utilised or affected by construction traffic, before the commencement of any work on the site, will be carried out. This condition survey to include an inventory of the road network intended to be used by vehicles, weight restrictions to be imposed on vehicles, a full colour photographic record of the road network intended to be used, a full written account of the existing condition and structural integrity of the infrastructure detailing all existing defects and features. Copies of these survey reports would be provided to the third-party owners.
2. Prior to any site works commencing, the main contractor will investigate/identify the exact location of and tag all existing services and utilities around and through the site with the assistance of the relevant Fingal County Council (FCC) technical divisions and utility companies.

3. The developer will appoint a Project Manager to manage the construction process on-site.
4. No waste, dirt, debris or other material shall be deposited on the public road or verge by machinery or vehicles travelling to or from the site during the construction phase. The contractor to arrange vehicles leaving the site to be kept clean.
5. Site security lighting will be located and designed so as not to result in glare on the public road or to impact negatively on any nearby dwellings.
6. Prior to any site works commencing, the contractor shall carry out a Site Investigation (SI). The Site Investigation report shall include detailed information on groundwater levels to allow for a risk assessment of potential adverse impacts of stabilised soils and/or recycle aggregates to groundwater. Additionally, the SI report should also include an evaluation of the re-use properties of the soils including laboratory trial mixes to evaluate the performance of the soils following the addition of lime and/or cement. Site investigation should include WAC testing as well as Irish EPA suite to evaluate the soil suitability for off-site disposal at a Soil Recovery Facility.

6.3.2 Site Security and Hoarding Lines

Hoarding lines and site security will be set up within the development site as required.

Hoarding and security fencing will be required on the public roads during the construction works and for the construction of the new realigned entrance to the site. Before construction commencing, a detailed construction traffic management plan will be prepared and submitted by the appointed contractor to FCC.

The traffic management plan will identify staging areas, delivery of materials, strategy for large concrete pours, removal of demolition waste, traffic routes etc.

Access gates will be operated by a flagman who will divert incoming/outgoing vehicles/pedestrians and general traffic as necessary.

6.3.3 Designated Storage Area & Site Compound

A site compound(s) including offices and welfare facilities will be set up by the main contractor in locations to be decided within the subject site.

The main contractor will be required to schedule the delivery of materials daily. The main contractor will be required to provide a site compound on the site for the secure storage of materials.

Measures will be implemented throughout the construction stage to prevent contamination of the soil and surrounding watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to protect from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills.

6.3.4 Cut Off Trenches

To prevent silt runoff from the development site the contractor will excavate a number of temporary cut off trenches (away from root protection zones) along the northern development boundary in advance of stripping topsoil. These cut off trenches will be connected to a temporary settlement pond to prevent the ingress of silt to the Broadmeadow River. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall from the settlement pond.

6.3.5 Deliveries, Site Access and Construction Traffic Routes

The Holybanks development is bounded to the south by Glen Ellan Road. Glen Ellan Road intersects with Balheary Road. A roundabout is located to the east of Balheary road where the R132 intersects with the R125 which connects the R132 to the M1 southbound to the north. Deliveries and access to the construction site will typically be made via Glen Ellan Road as can be seen in **Error! Reference source not found.** b elow.

A restriction on using any of the surrounding residential roads for Construction traffic will be put in place.

Due regard will be paid to minimising any impacts by construction vehicles on the existing developments in the area. Should routes become an issue, then the position will be reviewed by the Project Team and changes made.

Particular emphasis will be placed on;

- The issue of instructions and maps on getting to site to each supplier sub-contractor to avoid 'lost' construction traffic travelling on unapproved routes;
- Ongoing assessment of the most appropriate routes for construction traffic to and from the site;
- Interface with the operation of local traffic;
- Use of a banksman and/or traffic lights to control the exit of construction vehicles; and
- No construction traffic waiting on the public roads.

A detailed Construction Management Plan will be prepared by the contractor before construction which will outline site logistics and indicate the following:

- Site Access Locations;
- Site Boundary Lines;
- Tower Crane Locations;
- Vehicle Entry and exit routes from the site;
- Unloading areas;
- Site Offices and welfare facilities;
- Material Storage areas; and
- Banksmen Locations.

Materials will be ordered and delivered to site on an "as needed" basis to prevent oversupply to site. Deliveries will be managed upon arrival to the site and systems should be provided to avoid any queuing of delivery vehicles.

In the event that large concrete pours are required which may result in congestion at the entrance to the site the deliveries will be organised such that concrete trucks will queue at a pre-determined staging point (such that they do not cause an obstruction to general traffic in the area) and will then be called in by radio as appropriate to the site, via a pre-determined route and to the required access gate.

Set procedures and designated wash-out areas will be provided.

All delivery vehicles will be coordinated as required at the relevant access point.

Figure 6-1 Construction Routes to/ from the Development

Set procedures and designated wash-out areas will be provided, or vehicle wash-out will be prohibited if a suitable wash-out area is not identified, refer to section 6.4 for more details.
The Main Contractor will ensure that surface and ground waters are adequately protected from contamination by stored materials.

All delivery vehicles will be coordinated as required by a flagman on duty at the relevant access point.

All large pours will be carefully coordinated with the roads department at Fingal County Council.

The main contractor will be required to schedule the delivery of materials daily. If necessary, the main contractor will be required to provide a secure material staging compound on the site.

The primary item of the plant will be tower cranes which are to be located within the curtilage of the site for the duration of the works.

6.3.6 Parking

A site compound including offices and welfare facilities as well as a small amount of parking will be available on-site for contractors and site visitors. The site is well served by public transport including Swords Express Bus and Dublin Bus with a stop adjacent to the development.

No parking of construction-related vehicles will be permitted on the adjoining road network (Glen Ellan Road) and adequate parking facilities will be made available within the Construction Compound for all site workers during construction.

For those who wish to cycle to and from the development, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided, and cycle links will be maintained at all times.

A Construction Stage Mobility Plan will be prepared by the contractor alongside the Construction Management Plan before starting on site.

6.4 Construction Plan

6.4.1 Vehicle Washdown

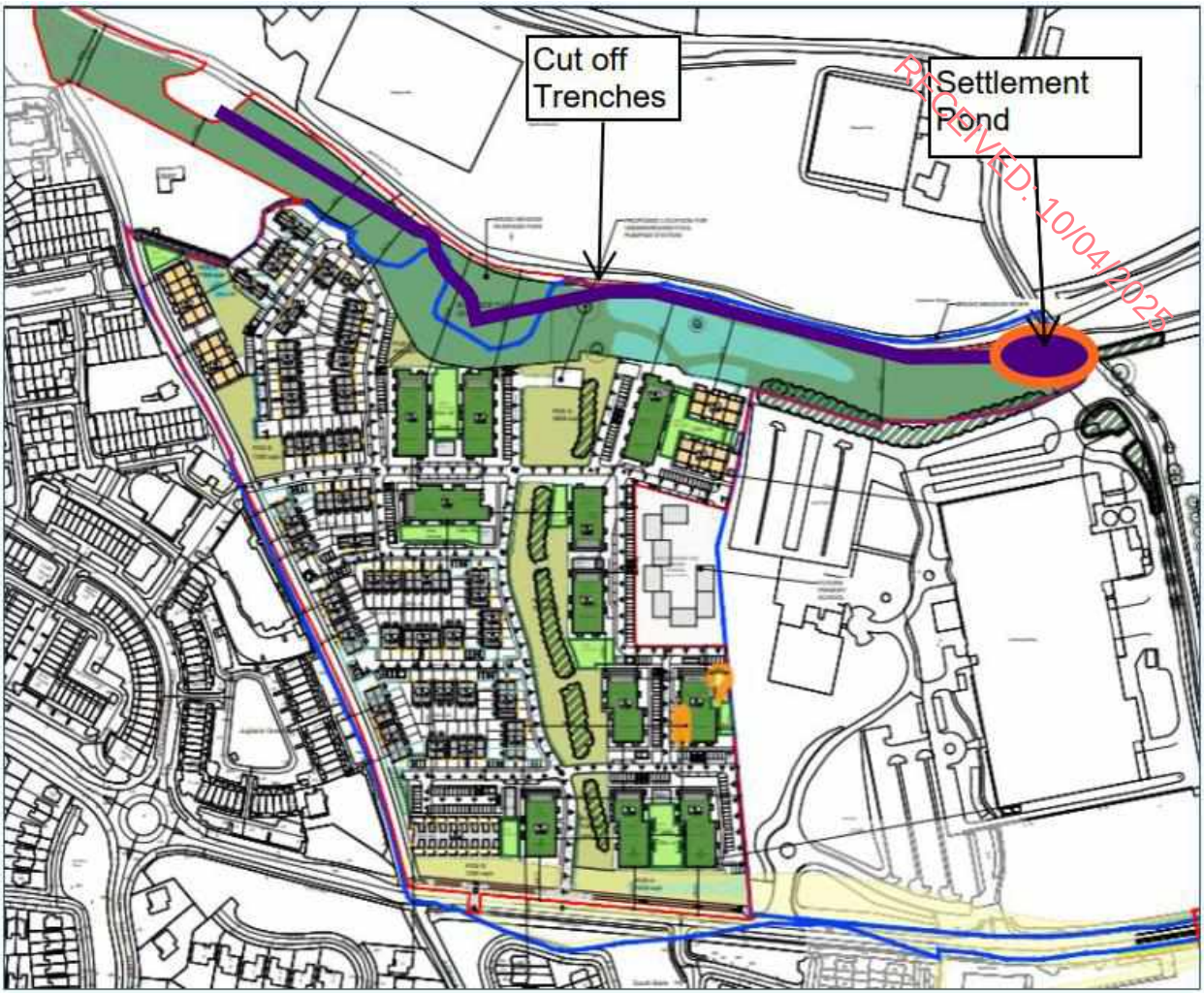
Where possible the permanent connection to the public foul sewer will be used temporarily for the construction phase. Vehicle wash down water will discharge directly, via suitable pollution control and attenuation, to the foul sewer system.

6.4.2 Surface Water Run-off

On-site treatment measures will be installed to treat surface water run-off from the site prior to discharge to the receiving Broadmeadow River. This treatment will be achieved by the construction of cut off trenches south of the woodland area, accounting for tree root protection. Cut off trenches will incorporate straw bales to reduce sediment loading, settlement tanks/ponds, the installation of proprietary surface water treatment systems including class 1 full retention petrol interceptors and spill protection control measures. Settlement tanks/ponds will be sized to deal with surface run-off and any groundwater encountered. All measures will be approved before commencement with the Pollution Section of Fingal County Council.

A sampling chamber with shut down valve will be installed downstream of the settlement pond/tank and water quality monitoring will be carried out here prior to discharge to the river. The proposed surface water management measures for the site are shown in Figure 6-2. The proposed location of the trenches are indicative and its installation will need to be supervised by the project ecologist.

Figure 6-2 Proposed cut off trenches location



Pollutants arising from construction works pose a temporary risk to surface water quality for the duration of the project if not properly contained and managed.

The recommendations as outlined in the Inland Fisheries Ireland document, 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016)', outline the following items to be considered for the protection of adjacent watercourses during the construction stage:

1. Fuels, oils, greases and hydraulic fluids must be stored in bunded compounds well away from the watercourse. Refuelling of machinery, etc., will be carried out in bunded areas.
2. Runoff from machine service and concrete mixing areas must not enter the watercourse.
3. Stockpile areas for sands and gravel will be kept to minimum size, well away from the watercourse.
4. Runoff from the above will only be routed to the watercourse via suitably designed and sited settlement ponds/filter channels.
5. Settlement ponds will be inspected daily and maintained regularly.
6. Temporary crossings will be designed to the criteria laid down for permanent works.
7. Watercourse banks will be left intact as much as possible. If they have to be disturbed, all practicable measures will be taken to prevent soils from entering the watercourses.

The main pollutants of site water are silt, fuel/oil, concrete and chemicals. See Table 2 for a list and brief description of pollution prevention measures.

Table 2 Pollution Prevention Measures

Source	Action
Detergents	Use of detergents will be carried out in designated areas draining to the foul sewer.
Fuel/Oil	Fuel/oil stores must be located away from the site drainage system and the edge of watercourses.
	Ensure adequate measures are identified to prevent or contain any spillage such as creating a fall away from any drainage grid or blocking drainage points.
	Prevent oil pollution by: • Suitable bunded storage of fuel/oil, and use of drip trays under plant, and • An oil separator, and/or • On-site spill-kit • Commercially available absorbent granules, pads or booms.
Material Storage	Store drums, oil and chemicals on an impervious base and within a secured bund.
	Ensure topsoil and/or spoil heaps are located at least 10m away from watercourses. Consider seeding them or covering them with tarpaulin to prevent silty runoff and losses due to wind.
Leaks and Spills	Storage facilities are to be checked regularly to ensure any leaks or drips are fixed to prevent loss and pollution.
	Ensure appropriate spill response equipment is located near to the material in case of containment failure or material spills, and ensure site staff know how to use it.
	Adequate stocks of absorbent materials, such as sand or commercially available spill kits and booms should be available at all times.
Litter	Provide waste bins on-site as appropriate.
Construction Vehicles	Provide vehicle wheel washing.
Concrete, Cement and Bentonite	Washout of these materials will be carried out in a designated, impermeable contained area. The washout water itself will be disposed of off-site or discharged to the foul sewer if authorised.

6.4.3 Surface Water Monitoring Parameters

In addition to daily visual inspections, a surface water monitoring programme, as outlined in Table 3 must be followed during construction to ensure maintenance of water quality protection. This is in line with Transport Infrastructure Ireland (TII)'s 'Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan'. It is considered that the parameter limit values (Guide/Mandatory) defined in the Fresh Water Quality Regulations (EU Directive 2006/44/EEC) should act as a trigger value for the monitoring of Surface Water.

Table 3 Monitoring Guidelines (Fresh Water Quality Regulations)

Parameter	Guide limit	Mandatory Limit	Frequency and Manner of Samplings
Temperature		1.5 ^{0}C	Weekly, and at appropriate intervals where the works activities associated with the scheme have the potential to alter the temperature of the waters.
Dissolved oxygen	50% of Samples ≥ 9 (mg/l O_2) 100% of Samples ≥ 7 (mg/l O_2)		Weekly, a minimum of one sample representative of flow oxygen conditions of the day of sampling
pH		6-9	Weekly
Nitrites	≤0.01 (mg/l $N0_2$)		Monthly
Suspended Solids	≤25 (mg/l)		Monthly
BOD5	≤3 (mg/l)		Monthly
Phenolic Compounds			Monthly where the presence of phenolic compounds is presumed (An examination by test)
Petroleum Hydrocarbons	5 (mg/l)		Monthly (visual)
Non-Ionized Ammonia	≤ 0.005 (mg/l NH_3)		Monthly
Total Ammonium	≤ 0.004 (mg/l NH_4)		Monthly
Total Residual Chlorine		≤ 0.005 (mg/l HOCl)	At appropriate intervals where works activities associated with the scheme have the potential to alter the Total residual Chlorine of the waters
Electrical Conductivity			Weekly

6.4.4 Sediment Control

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 will be implanted on-site to mitigate these issues.

Sediment basins and traps will be designed by the main contractor and installed before any major site grading takes place. Additional sediment traps and silt fences/straw bales will be installed as grading takes place to keep sediment contained on-site at appropriate locations.

Key runoff-control measures will 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 will be installed above the areas to be disturbed before any grading operations. Any perimeter drains will be installed with stable outlets before opening major areas for development. Any additional facilities needed for runoff control will be installed as grading takes place.

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

The main run-off conveyance system with inlet and outlet protection measures will 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 willow 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 receiving waters.

Sediment Control Measures

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

- Straw Bales

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

- Silt Fencing

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

- Diversion Drains

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

- Silt Traps

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

6.4.5 Dust and Dirt Control

Nuisance dust emissions from construction activities are a common and well recognised problem. Fine particles from these sources are recognised as a potentially significant cause of pollution.

The main contractor will be required to demonstrate that both nuisance dust and fine particle emissions from the site are adequately controlled and are within acceptable limits.

Dust and fine particle generation from construction and demolition activities on the site will be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at the source and prevent it from becoming airborne since suppression is virtually impossible once it has become airborne.

The following are techniques and methods which are widely used currently throughout the construction industry and which may be used in the proposed development.

- The public roads around the site are all surfaced, and no dust is anticipated arising from unsealed surfaces.
- Vehicles travelling on any unsurfaced site roads should have their speed restricted to 20 kph.
- Access gates to the site shall be located at least 10m from sensitive receptors where possible;
- A regime of 'wet' road sweeping will be set up to ensure the roads around the immediate site areas are clean and free from dirt/dust arising from the site, as is reasonably practicable. This cleaning will be carried out by approved mechanical sweepers.
- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. During periods of very high winds (gales), activities likely to generate significant dust emissions should be postponed until the gale has subsided.
- Footpaths immediately around the site will be cleaned by hand regularly, with damping as necessary.
- High-level walkways and surfaces such as scaffolding will be clean-up regularly using safe 'wet' methods, as opposed to dry methods.
- Vehicle waiting areas or hard standings will be regularly inspected and kept clean by brushing or vacuum sweeping and will be regularly sprayed to keep moist, if necessary.
- Vehicle and wheel washing facilities will be provided at site exit(s) where practicable. If necessary, vehicles will be washed down before exiting the site.
- Netting will be provided to enclose scaffolding to mitigate the escape of airborne dust from the existing and new buildings.
- Vehicles and equipment shall not emit black smoke from the exhaust system, except during ignition at startup.
- Engines and exhaust systems should be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle/equipment type and mode of operation.
- Servicing of vehicles and plant should be carried out regularly, rather than just following breakdowns.
- Internal combustion plant should not be left running unnecessarily.
- Exhaust direction and heights should be such as not to disturb dust on the ground and to ensure adequate local dispersal of emissions.

- Where possible fixed plant such as generators should be located away from residential areas.
- The number of handling operations for materials will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.
- The transport of dusty materials and aggregates will be carried out using covered/sheeted lorries. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions.
- Material handling areas should be clean, tidy and free from dust.
- Vehicle loading should be dampened down and drop heights for material to be kept to a minimum.
- Drop heights for chutes/skips should be kept to a minimum.
- Dust dispersal over the site boundary should be minimised using static sprinklers or other watering methods as necessary.
- Stockpiles of materials should be kept to a minimum and if necessary, they should be kept away from sensitive receptors such as residential areas etc.
- Stockpiles were necessary, should be sheeted or watered down.
- Methods and equipment should be in place for immediate clean up of spillages of dusty material.
- No burning of materials will be permitted on site.
- Earthworks excavations should be kept damp where necessary and where reasonably practicable.
- Cutting on-site should be avoided where possible by using prefabrication methods.
- Equipment and techniques for cutting/grinding/drilling/sawing/sanding etc, which minimise dust emissions and which have the best available dust suppression measures, should be employed.
- Hoarding will be erected around site boundaries to reduce visual impact. This will also have the added benefit of preventing larger particles from impacting nearby sensitive receptors.
- Where scabbling is to be employed, tools should be fitted with dust bags, residual dust should be vacuumed up rather than swept away, and areas to be scabbled should be screened off.
- Wet processes should be used to clean building facades if possible. If dry grit blasting is unavoidable then ensure areas of work are sealed off and dust extraction systems used.
- Where possible pre-mixed plasters and masonry compounds should be used to minimise dust arising from on-site mixing.
- Before commencement, the main contractor should identify the construction operations which are likely to generate dust and draw up action plans to minimise emissions, utilising the methods highlighted above. Furthermore, the main contractor should prepare environmental risk assessments for all dust-generating processes, which are envisaged.
- The main contractor should allocate suitably qualified personnel to be responsible for ensuring the generation of dust is minimised and effectively controlled.
- The name and contact details of a person to contact regarding air quality and dust issues should be displayed on the site boundary, this notice board should also include head/regional office contact details.

The contractor will be obliged to implement the mitigation measures outlined in the EIAR in respect of dust/dirt control, as detailed in the Dust Management Plan set out in the Air and Climate chapter of the EIAR.

6.4.6 Noise Control

The main contractor will deal with the immediate dangers to hearing etc. associated with high noise levels and the impact of same on construction operatives, using risk assessment and mitigation/precautionary measures and equipment, all pursuant to the current health and safety legislation.

The main contractor will carry out a noise assessment in relation to the proposed works at the construction stage. This noise assessment will be carried out by a competent person (or a specialist firm) with specialist training in this area.

The noise assessment should include the following steps:-

- Identify and list all construction work activities where there is likely to be a significant noise hazard.
- Determine the hazards/nuisance.
- Identify all third parties likely to be exposed to the nuisance.
- Measuring the risk: The level of noise in dBs
- Considering and Implementing Control Measures.
- Control exposure to noise.
- Record the findings of the noise assessment.
- Review and revise.

The contractor will be obliged to implement the noise mitigation measures set out in Chapter 8 of the EIAR.

6.4.7 Protection of Soils and Groundwater

To preserve the topsoil on the site, topsoil will be removed to stockpiles and protected during the construction period for reuse on completion of the works. Topsoil will be stored in mounds and suitably protected to prevent waterlogging during wet weather. The stripping of topsoil will be undertaken on a phased basis so that no area is stripped until works are imminent in that area. All topsoil stripping associated with the proposed development will be monitored by a suitably qualified archaeologist. During topsoil stripping a written and photographic record describing the form of the townland boundaries to be impacted upon should be included in the monitoring report.

Levels of the proposed roads will be established to minimise the quantity of fill material to be imported to the site. Surplus subsoil will be used for landscaping where possible.

The provision of wheel wash facilities at the construction entrance to the development will minimise the amount of soil deposited on the surrounding road network. The adjoining road network will be cleaned regularly, if required, to prevent the build-up of soils from the development site on the existing blacktop roads.

Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to protect from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills.

Cut off trenches along the northern boundary of the development boundary will be constructed before stripping topsoil. These cut off trenches will have a settlement pond/silt trap at the end of each trench with an overflow. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent silt runoff into the existing ditches/watercourses during the drainage works.

Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works.

The excavations for the basement, drainage pipes, water supply, utilities and foundations have been designed to be as shallow as possible to reduce excavation depths. However, an impact on the water on site is anticipated. Careful attention will be required to maintain the excavations clear of groundwater.

A discharge Licence will be required for any groundwater pumped from the excavations to any public watercourse or sewer.

All water pumped from the excavations will require to be treated for silt and deleterious matter (i.e. by the use of silt traps, straw bales or similar) and no direct discharge to an existing stream/ditch or sewer will be allowed. During any discharge of water from the excavations, the quality of the water will be regularly monitored visually for hydrocarbon sheen and suspended solids. Periodic laboratory testing of discharge water samples will be carried out in accordance with the requirements of the discharge licence obtained from the Local Authority.

After implementation of the above measures the proposed development will not give rise to any significant long term adverse impact. Negative impacts during the construction phase will be short term only in duration.

6.4.8 Protection of Surface Waters

- The contractor will appoint a suitably qualified person to oversee the implementation of measures for the prevention of pollution to the receiving surface water environment.
- Cut off trenches along the northern boundary of the development boundary will be constructed prior to stripping topsoil. These cut off trenches will have a settlement pond/silt trap at the end of each trench with an overflow. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent surface water runoff from discharging directly into the local watercourse.
- Settlement ponds/silt traps as outlined above will be provided to prevent silt runoff into the River Broadmeadow during the drainage works.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location will be agreed upon between the project ecologist and the site foreman at the commencement of works. Trigger levels for halting works and re-examining protection measures will be: pH >9.0 or pH <6.0; and/or suspended solids >25 mg/l. These trigger levels are based on those outlined within 'Guidelines on Protection of Fisheries During Works in and Adjacent to Waters (IFI, 2016)'.
- Where silt control measures are noted to be failing or not working adequately, works will cease in the relevant area. The project ecologist will review and agree on alternative pollution control measures, such as deepening or redirecting trenches as appropriate, before works may recommence.
- All fuels and chemicals will be bunded, and where applicable, stored within double skinned tanks/containers with the capacity to hold 110% of the volume of chemicals and fuels contents. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water-conducting features, including the cut off trenches.
- All existing services will be located using service records, GPR surveys and slit trenches to ensure that their positions are accurately identified before excavation works commence.
- Temporary traffic management will be implemented as appropriate during the construction of the outfalls on Glen Ellan Road.

6.4.9 Refuelling

- Construction plant and equipment will only be parked overnight within the site compound. Construction plant and equipment will be checked daily for any visual signs of oil or fuel leakage, as well as wear and tear.

- Fuel will not be stored on-site for the duration of the construction phase. Fuel will only be brought to the site via mobile fuel bowser. For any liquid other than water, this will include storage in suitable tanks and containers which will be housed in the designated area surrounded by a bund wall of sufficient height and construction to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded areas will be impervious of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund.

- Where Contractors are required to refuel vehicles, this will only be carried out at the designated refuelling location within the site storage compound, which must employ pollution control mechanisms to prevent the escape of fluids to the river. No refuelling is permitted on-site, i.e. within the river or adjacent due to risk of spillage.

- The local authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase.

- All small plant such as generators and pumps bunded and stood in drip trays capable of holding 110% of their tank contents,

- All small plant will be positioned on the bridge itself (within the designated works area – refer to Preliminary Traffic Management Plan), on the secured scaffolding/work platforms, or within the dewatered, 'dry' sections of the dammed river during the works.

- Waste oils, empty oil containers and other hazardous wastes will be disposed of in accordance with the requirements of the Waste Management Act, 1996.

6.4.10 Site Tidiness and Housekeeping

- Construction works will be carried out according to a defined schedule agreed with the client and the relevant contractors, with regard to the hours of work outlined above. Any delays or extensions required will be notified at the earliest opportuning to the client and Contractors.

- Contractors will ensure that road edges and footpaths are swept regularly.

- Any and all waste materials arising during the works will either be immediately taken to a location from which discharge to the Broadmeadow River cannot take place, or temporarily stored/covered to prevent washout thereto.

- All Contractors will be responsible for the clearance of their plant, equipment and any temporary buildings upon completion of construction. The site will be left in a safe condition.

6.4.11 Monitoring, Inspection and Record Keeping

- The Project Ecologist will supervise the sampling of suspended solids downstream prior to commencement of works, and weekly during remediation works. Samples will be analysed on-site. Should results show a 10% increase in suspended solids downstream of the site this will be brought to the attention of the contractor by the Project Ecologist and any suitable contingency measures will be instigated.

- Routine inspections of construction activities will be carried out daily by the contractor staff to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in compliance with the Project CEMP and that the requirements of the Conditions of Planning, the NIS and associated documentation are being adhered to during construction.

- The Contractor will develop their site inspection programme, which will include an inspection procedure and relevant forms to record any issues.

- Only suitably trained staff will undertake environmental site inspections.

- The Project Ecologist will keep records of works undertaken.

7. Schedule of Mitigation Measures.

The following measures are outlined in the accompanying Environmental Impact Assessment Report (EIAR) prepared by McGill Planning.

Any additional mitigation measures to those identified shall be incorporated into the CEMP by the contractor before commencing work on site.

Population and Human Health	A Construction and Environmental Management Plan (CEMP) has been prepared by Waterman Moylan Consulting Engineers and will be implemented during the construction phase to reduce the detrimental effects of the construction on the environment and local population and is submitted with this application. Construction noise and vibration impacts are expected to vary during the construction/ site clearance phase depending on the distance between the activities and noise sensitive buildings and that best practice control measures will ensure impacts at off-site noise sensitive locations are minimised. These are outlined in detail in Chapter 8. Chapter 11 Traffic and Transportation of the EIAR and this CEMPinclude traffic management measures to minimise the impact of construction traffic. These measures are put forward to avoid any significant negative environmental impacts on the population and human health. No additional mitigation measures are considered necessary.
Biodiversity	***Protection of Habitats*** **Mitigation 1: Standard Surface Water Protection Measures** The following measures will protect surface waters during the Construction Phase of the Proposed Development. All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) Acts, 1977 and 1990 and the contractor will cooperate fully with the Environment Section of Fingal County Council in this regard. Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. Procedures and relevant documents produced will be formulated in consideration of standard best international practice. The following standard operational measures will protect surface waters during the Construction Phase of the Proposed Development: • Cut off trenches along the northern boundary of the Proposed Development boundary will be constructed prior to stripping topsoil. These cut off trenches will have a settlement pond/silt trap at the end of each trench with an overflow. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent surface water runoff from discharging directly into the local watercourse.

	• Run-off from the working site or any areas of exposed soil should be channelled and intercepted at regular intervals for discharge to silt-traps or lagoons with over-flows directed to land rather than to a watercourse. • Pumping of concrete will be monitored to ensure that there is no accidental discharge. • There will be no mixer washings or excess concrete discharged on Site. All excess concrete is to be removed from Site and all washout of concrete chutes to be captured in a tank which shall be removed offsite for disposal at an authorised wastewater treatment facility. • Silt fences will be appropriately located along the drainage ditches on Site, where not in place already, to help prevent untreated surface water run-off entering any watercourse. A buffer zone should remain between the silt fence and the watercourse with natural vegetation left intact. • Any oil and lubricant changes and maintenance will take place offsite. • All open water bodies adjacent to areas of proposed works will be protected by fencing including settlement ponds. • A regular review of weather forecasts of heavy rainfall will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible. • The developer will ensure that erosion control measures i.e., the silt-traps are regularly maintained during the Construction Phase. • Any imported materials will, as much as possible, be placed on Site in their proposed location and double handling will be avoided. Where this is not possible designated temporary material storage areas will be used. • Temporary storage areas will be located at least 10m away from any surface water features/drainage ditches etc.; and will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials • All containment and treatment facilities will be regularly inspected and maintained. • If cast-in-place concrete is required, all work must be carried out in the dry and effectively isolated from any water courses or drainage ditches. • If required, refuelling of plant during the Construction Phase will only be carried out at a designated refuelling location. Each location will be fully equipped for spill response. Prior to the commencement of works site personnel will be trained in Environmental and Emergency Spill Response procedures. • Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed off site. • Site personnel working will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.

- Any other diesel, fuel or hydraulic oils stored on site will be stored in bunded storage tanks- the bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (Enterprise Ireland, BPGCS005).
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from site by a licenced waste management contractor.
- In the unlikely event material becomes contaminated, by for example a fuel spill onsite or a burst / leaking hydraulic hose, a documented procedure for contaminated material will be prepared and adopted by the appointed contractor prior to works commencing on Site. These documents will detail how potentially contaminated material will be dealt with during the excavation phase.
- All wastewater generated on-site during the Construction Phase will be stored and disposed of appropriately by discharge to foul sewer or by tankering off site. Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into the drainage ditches on Site.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location will be agreed upon between the project ecologist and the site foreman at the commencement of works. Trigger levels for halting works and re-examining protection measures will be: pH >9.0 or pH <6.0; and/or suspended solids >25 mg/l. These trigger levels are based on those outlined within 'Guidelines on Protection of Fisheries During Works in and Adjacent to Waters (IFI, 2016)'.
- Regular testing of surface water discharges will be undertaken at the outfall from the subject lands. The location will be agreed upon between the project ecologist and the site foreman at the commencement of works. Trigger levels for halting works and re-examining protection measures will be: pH >9.0 or pH <6.0; and/or suspended solids >25 mg/l. These trigger levels are based on those outlined within 'Guidelines on Protection of Fisheries During Works in and Adjacent to Waters (IFI, 2016)'.
- All small plant will be positioned on the bridge itself, on the secured scaffolding/work platforms, or within the dewatered, 'dry' sections of the dammed river during the works.

<u>Fuel and Chemical Storage</u>

Appropriate storage facilities will be provided on Site. Areas of high risk include:

- Fuel and chemical storage.
- Refuelling Areas.
- Site Compound.
- Waste storage areas.

Fuel will not be stored on-site for the duration of the Construction Phase. Fuel will only be brought to the site via mobile fuel bowser. For any liquid other than water, this will include storage in suitable tanks and containers which will be housed in the designated area surrounded by a bund wall of sufficient height and construction to contain 110 percent (110%) of the total contents of all containers and associated pipework. The floor and walls of the bunded areas

	will be impervious of all containers and associated pipework. The floor and walls of the bunded area will be impervious to both water and oil. The pipes will vent downwards into the bund. All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds shall be designed having regard to Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (2904). All tank and drum storage areas shall, as a minimum, be bunded to a volume not less than the greater of the following: • 110% of the capacity of the largest tank or drum within the bunded area; or • 25% of the total volume of substance that could be stored within the bunded area. Concrete mixer trucks will not be permitted to wash out on Site with the exception of cleaning the chute into a container which will be removed off Site to an authorised facility. **Mitigation 2: Reduction of dust related impacts** The following general dust control measures will be followed for the duratio of the Construction Phase of the Proposed Development, and will ensure n significant dust related impacts occur to nearby sensitive receptors such as th greenfield site to the east of the Site of the Proposed Development. • Haulage vehicles transporting gravel and other similar materials to Site will be covered by a tarpaulin or similar. • Access and exit of vehicles will be restricted to certain access/exit points. • Vehicle speed restrictions of 20km/hr will be in place. • Bowsers will be available during periods of dry weather throughout the Construction period. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil thereby reducing the amount of dust. • Stockpiling of imported materials will be avoided where possible with imported materials ideally placed on Site in their proposed location upon receipt with double handling avoided. • Stockpiles will be stored in sheltered areas of the Site, covered, and watered regularly or as needed if exposed during dry weather. • Gravel should be used at Site exit points to remove caked-on dirt from tyre tracks. • Hard surfaced roads will be wet swept to remove any deposited materials • Unsurfaced roads will be restricted to essential traffic only. • If required to control dust nuisance wheel-washing facilities will be located at the exit from the construction area. • Dust production as a result of Site activity will be minimised by regular cleaning of the access roads using vacuum road sweepers and washers. Access roads should be cleaned at least 0.5km on either side of the approach roads to the access points. • Public roads outside the Site shall be regularly inspected for cleanliness, as a minimum daily, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris.

- The frequency of cleaning will be determined by the Site agent and is weather and activity dependent.
- The height of stockpiles will be kept to a minimum and slopes should be gentle to avoid windblown soil dust.
- The following will be dampened during dry weather:
- Unpaved areas subject to traffic and wind.
- Stockpiles.
- Areas where there will be loading and unloading of dust- generating materials.
- Under no circumstances will wastewater from equipment, wheel or surface cleaning enter the drainage ditches along the boundaries of the Site.

Mitigation 3: Tree Protection

Protective tree fencing in compliance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' will be erected prior to any Construction works being undertaken to prevent damage to the canopy and root protection areas of existing trees at the Site. The fencing should be signed off by a qualified arborist prior to Construction to ensure it has been properly erected. No ground clearance, earthworks, stock-piling or machinery movement will be undertaken within these areas.

Mitigation 4: Invasive Species Removal

It is recommended that non-native/invasive flora species recorded at the Site are controlled/removed as per the appropriate best-practice guidelines. Removal and disposal should be carried out in accordance with appropriate guidelines such as TII (formerly NRA) *The Management of Invasive Alien Plant Species on National Roads* (2020), with consideration given to the prevention of spread of these plants.

Butterfly Bush

With regards to the invasives species present on Site, namely butterfly bush, the following is extracted from TII (2020):

Chemical control

"Foliar application of herbicide is capable of providing control with young plants and small infestations, but should be followed up at six-monthly intervals as regrowth is common.

Physical control

Removal of the flower heads before seed set (June or even July) is an important control method as it reduces the volume of seeds that are available to spread. Hand-picking of young plants will provide control but it is very tedious and should be undertaken with care to avoid soil disturbance, which can give rise to a flush of new seedling growth. Digging out plants is only practical with relatively minor infestations, at the initial stage of invasion, or where a site is to be excavated for development or road construction purposes. Mowing of young plants does not provide effective control as they re-sprout with vigour. The physical removal of mature stands is not recommended for the same reason. After uprooting, it is essential to plant the ground in order to prevent a flush of

new seedling growth. When Buddleia plants are cut, regrowth from the stump can be very vigorous.

Combined chemical and physical control

Effective control can be achieved by cutting Buddleia plants to a basal stump during active growth (late spring to early summer) and immediately treating the total cut surface with herbicide concentrate. Monitoring will be required and retreatment, as necessary. Do not leave cut stems and branches on the ground as they will re-root and produce new plants."

Recommended Management: Physical removal and off-site disposal of butterfly is recommended where it occurs within the survey area.

Himalayan Honeysuckle

The following is extracted from TII (2020):

"Himalayan honeysuckle (also known as Pheasant berry or Flowering nutmeg) is a deciduous, perennial woody shrub and member of the Caprifoliaceae family, native to the Himalayas and southwestern China. It is likely an escapee from cultivation in Ireland and is mostly found in woodlands, roadsides, railway banks and quarries (Reynolds, 2002). Himalayan honeysuckle is still widely sold as an ornamental plant and is often used as a hedging plant to provide cover for pheasants (Preston, et al., 2002). It is well established in the south-east of the country. Himalayan honeysuckle flowers from June to the end of October, producing long, hanging clusters of bell-shaped flowers (Figure 26). Its large, red-purple berry-like fruits are widely dispersed by birds (Heleno, et al., 2011). Its bamboo-like stems can grow up to 2m tall and commonly form dense thickets, which can dominate hedgerows and displace native species (Booy, et al., 2015)

Recommended Management: Physical removal of Himalayan honeysuckle and off-site disposal is recommended where it occurs within the scrub habitat on Site.

Wall Cotoneaster

The Garry Oak Ecosystems Recovery Team (2005) in British Columbia provides the following recommendations for control of cotoneaster:

Physical Control

To lessen site disturbance, remove cotoneaster plants when soil is moist, and immediately replant disturbed soil with desirable native species to prevent re-infestation. If cotoneaster plants are removed before the fruit ripens, any fruit that fall to the ground will be unlikely to spread viable seed. Large plants can be removed with equipment; cut off limbs first, then dig out the base with a shovel or backhoe. Roots can penetrate deep into rock crevices, requiring extensive excavation. Ensure stumps and shallow roots are completely removed, as both can re-sprout.

Because seeds from the seed bank can germinate and re-infest the site, management efforts should include seedling removal as required.

Chemical Control

Cotoneaster can also be controlled chemically via herbicide application.

To kill small cotoneaster shrubs and control regrowth, treat with glyphosate, using a wiping type of herbicide applicator (weed wiper) or hand-held spray.

For large shrubs, cut branches to the stump and paint with glyphosate. It may be beneficial to rough up and expose the bark and paint it with glyphosate. **Recommended Management**: Given the scale of the cotoneaster stands at the Site within the scrub habitat mechanical removal is recommended for this species at this Site.

Mitigation 5: Biosecurity

It is also necessary to ensure that the potential spread of IAS into areas/sites where they are not present is prevented. Equally, this applies to the risk of contaminated material being brought onto the Site. Unwashed construction equipment, plant and vehicles, and footwear can provide a vector for the spread of IAS within a site and from areas outside the site where infestation is present or where vector material potentially containing seed/root material is attached to plant. The following hygiene measures shall be undertaken:

- Known or potentially infested areas within the Site shall be clearly fenced off in advance of works and access restricted, until such time that the appointed specialist has commenced treatment;
- Erection of clear signage at relevant fenced off areas. The signage and notification should be easily understood so that Site users are aware of the measures to be taken for known non-native invasive species on Site, or what they should do in the case of suspected non-native invasive species identified on Site;
- Where possible, dedicated footwear and wheel-wash facilities should be identified. Where a dedicated/bespoke wheel-wash cannot be installed owing to space limitations, no excavated loose material is allowed offsite from within an exclusion zone. Similarly, where plant is used to excavate soils, it shall be visually checked for loose soil before movement to another part of the site (where possible, the movements of tracked machinery should be restricted within the IAS exclusion zone. Loose soil shall be scraped off and disposed of, and a solution of Virkon© (or similar approved disinfectant) applied to machinery to ensure that no obscured seed/root material remains viable;
- Machinery which has been used for the transport and/or excavation of infected/suspected infected vector material shall be thoroughly washed down and the washings captured for disposal. All such machinery/plant shall not be permitted to commence work elsewhere on or off-site until confirmation of same has been undertaken;
- Dedicated wash down and solution capture should be set up on Site. All washings should be stored in a quarantined bunded container that is rated for such storage, until such time that they are removed offsite for disposal and a facility that is authorised to accept such waste;
- Except in very particular circumstances and with the approval of the specialist treatment contractor, there should be no temporary storage of

infected/suspected infected soils on-site. They must be removed offsite as per guidance outlined within the EIAR;

- Where small volumes e.g., volume capable of being double bagged in quarantine bags rated for such cut plant, bulbs or loose soil occur, it may be practical to bag the material and bring it to a clearly demarcated and dedicated quarantine area within the construction compound until such time that the material is disposed of to an authorised facility, similar to the process of disposing of bulk excavated infected soil.

Protection of Fauna

Mitigation 6: Reduction of noise related impacts

Noise generated during the Construction Phase of the proposed development could cause temporary disturbance to a number of faunal species in the vicinity of the Site. To mitigate this disturbance, the following measures will be implemented:

- Selection of plant with low inherent potential for generating noise.
- Siting of plant as far away from sensitive receptors as permitted by site constraints.
- Avoidance of unnecessary revving of engines and switch off plant items when not required.
- Keep plant machinery and vehicles adequately maintained and serviced.
- Proper balancing of plant items with rotating parts.
- Keep internal routes well maintained and avoid steep gradients.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use of alternative reversing alarm systems on plant machinery.
- Where noise originates from resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Appointing a site representative responsible for matters relating to noise.
- Monitoring typical levels of noise during critical periods and at sensitive locations.

These measures will ensure that any noise disturbance to nesting birds or an other fauna species in the vicinity of the Site will be reduced to a minimum.

Mitigation 7: Construction Phase Lighting

As a precautionary measure, no overnight lighting will be directed to the natural habitats bounding the Site. Where overnight lighting cannot be avoided in these areas due to health and safety concerns, the lighting within the Proposed Development will be designed and installed to minimise the impact on local

wildlife as agreed with the Ecologist and in accordance with the Bat Conservation Trust guidelines on artificial lighting and bats (BCT, 2023):

- There will be no light spill to the boundary habitats.
- All luminaires used will lack UV/IR elements to reduce impact.
- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e., with no upward tilt.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.
- The retained hedgerow along the east boundary of the Site will be maintained as a dark corridor as it connects to the wider environment and acts as an ecological corridor.

Mitigation 8: Pre-Clearance Surveys

Prior to the commencement of construction works on Site, a targeted mammal survey will be carried out on Site to determine if any mammal species, including badger and otter, are utilising the habitats either on or within the vicinity of the Site of the Proposed Development. This includes targeted otter surveys along the watercourses within the 150m disturbance buffer zone to confirm the presence/absence of holts and a targeted badger survey within the 50m of the Site to confirm the presence/absence of setts. Should setts or holts, or evidence of rare or protected mammals, be found on Site, consultation will be sought with the NPWS.

Prior to the clearance and felling of vegetation to be removed from the Site, an updated roost assessment will be carried out on trees noted to have bat roost potential in the Bat Report (Bat Eco Services, 2024) due to the transient nature of these species. Should bats be found roosting within any trees to be removed from the Site, a derogation license will be sought from the NPWS.

Mitigation 9: Vegetation Clearance

Vegetation clearance of the hedgerow, treeline and grassland habitat will need

to be cognisant of any potentially present fauna. The table below provides guidance for when vegetation clearance is permissible in relation to wintering, hibernating and breeding fauna. Information sources include British Hedgehog Preservation Society's *Hedgehogs and Development* and *The Wildlife (Amendment) Act, 2000*. The preferred period for vegetation clearance is within the months of September and October to avoid the main breeding bird season and bat maternity and roosting season as well as mammal hibernation.

Where this seasonal restriction cannot be observed, a check for active nests, will be carried out immediately prior to any Site clearance by an Ecological Clerk of Works (ECoW) and repeated as required to ensure compliance with legislative requirements. Where a breeding bird and an active nest is found, the nest will be protected, and no further works will take place in the vicinity of the nest until the young have fledged.

Seasonal restrictions on vegetation removal. Red boxes indicate periods when clearance/works are not advised.

<table>
<tr><th>Ecological Feature</th><th>Jan</th><th>Feb</th><th>March</th><th>April</th><th>May</th><th>June</th><th>July</th><th>Aug</th><th>Sept</th><th>Oct</th><th>Nov</th><th>Dec</th></tr>
<tr><td>Bats</td><td colspan="8">Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist</td><td colspan="2">Preferred period for tree-felling</td><td colspan="2">Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist</td></tr>
<tr><td>Breeding Birds</td><td colspan="2">Vegetation clearance permissible</td><td colspan="6"><u>Nesting bird season</u>
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.</td><td colspan="4">Vegetation clearance permissible</td></tr>
<tr><td>Hibernating mammals</td><td colspan="4"></td><td colspan="4"></td><td colspan="2"><u>Mammal hibernation season</u></td></tr>
</table>

<table>
<tr><td></td><td>
<table>
<tr><td>(namely Hedgehog)</td><td>Mammal hibernation season
No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td><td colspan="2">Vegetation clearance permissible</td><td>No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.</td></tr>
<tr><td>Amphibians</td><td>Amphibian Hibernation Season
No habitat clearance permissible</td><td>Amphibian breeding season
No habitat destruction unless confirmed to be devoid of tadpoles and other signs of amphibians</td><td>Vegetation / Site clearance permissible</td><td>Amphibian Season
No habitat clearance permissible</td></tr>
<tr><td></td><td></td><td colspan="2"></td><td>Lizard Hibernation Season
No habitat clearance permissible</td></tr>
</table>

Mitigation 10: Waste Management
As best-practice, all construction-related rubbish on-site e.g., plastic sheeting, netting etc. should be kept in a designated area on-site and kept off ground level so as to protect small fauna (such as small mammals, amphibians and reptiles) from entrapment and death.</td></tr>
<tr><td>Land, Soil and Geology</td><td>The provision of wheel wash facilities at the construction entrance to the development will minimise the amount of soil deposited on the surrounding road network. The adjoining road network will be cleaned regularly, if required,</td></tr>
</table>

	to prevent the build-up of soils from the development site on the existing blacktop roads. Measures will be implemented throughout the construction stage to prevent contamination of the soil and adjacent watercourses from oil and petrol leakages and significant siltation. Suitable bunded areas will be installed for oil and petrol storage tanks. Designated fuel filling points will be put in place with appropriate oil and petrol interceptors to protect the ground from accidental spills. Spill kits will be provided by the Contractor to cater for any other spills. Cut off trenches along the northern boundary of the development will be constructed before stripping topsoil. These cut off trenches will have a settlement pond/silt trap at the end of each trench with an overflow. Straw bales will be placed within the cut off trenches at strategic locations and at the outfall of the settlement ponds to the overflow. These measures will be implemented and maintained during the construction phase to prevent silt runoff into the existing ditches/watercourses during the drainage works. Dampening down measures with water sprays will be implemented during periods of dry weather to reduce dust levels arising from the development works. After implementation of the above measures which are also outlined in the Construction and Environmental Management Plan the proposed development will not give rise to any significant long-term adverse impact. Negative impacts during the construction phase will be short term only in duration.
Hydrology and Hydrogeology	Mitigation measures during the construction phase are discussed below. These mitigation measures have been developed with the source-pathway-receptor links above in mind and are designed to break this link either by removing the source, or disrupting the pathway for pollution. **Best Practice Construction Methods** A preliminary Construction Environmental Management Plan (CEMP) has been prepared for the proposed scheme and will be put in place by the appointed contractor. The preliminary CEMP is appended to the Soils Chapter of this EIAR, Appendix 6.4 of EIAR Volume 2. The preliminary CEMP was prepared in accordance with the following: • National and International Legislation; • Environment Liability Regulations; and • Best Management Guidelines The CEMP will be used by the contractor to prevent and minimise environmental effects during construction. **Surface Water runoff** Surface water generated on site from rainfall will be discharged initially to

settlement tanks. Prior to discharge off-site, the surface water will pass through a treatment train consisting of silt traps and settlement tanks to remove suspended solids and hydrocarbons. Regular visual inspection of the discharged surface water and monitoring of the treatment train will be undertaken (refer to Section 7.11 of chapter 7 of the EIAR).

Temporary storage of soil will be carefully managed to prevent any potential negative effects on the receiving hydrological environment. the material will be stored away from any existing drains within the site. Movement of material will be minimised to reduce degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise potential for water ingress into excavations.

Weather conditions will be monitored when planning construction activities, to minimise risk of run-off from the site and the suitable distance of topsoil piles from drainage ditches/sewerage systems will be maintained. In the event of an extended period of dry weather, stockpiles will be dampened using a water spray. The level of spraying will be sufficient to just dampen the soil to avoid dust blow and avoid excessive runoff that could arise during this process. Site roads will also be subject to similar mitigation to avoid dust blow.

Fine Sediment Pollution

Mitigation for the protection of surface and groundwater quality from runoff carrying fine sediments and urban pollutants involves silt control measures. These include proper planning of works, site compound construction, storage management and excavation plans, as follows:

- Planning of works should be conscious of available weather forecasts and avoid working during heavy rain/storm events to minimise the risk of runoff that may be in excess of the capacity of the runoff control measures outlined in the preliminary CEMP. If working during precipitation events cannot be avoided, then runoff control measures should be actively monitored during the works to ensure their capacity is not compromised;
- Adherence to best practice guidance for pollution prevention and sediment management measures (e.g., use of oil booms, spill kits, and silt fences etc.) will be applied.
- The contractor will construct a site compound at a location at least 50m remote from any drains or watercourses;
- Storage locations and topsoil piles will be placed in appropriate places, at least 50m from existing drains/watercourses within site;
- All soil stockpiles shall be covered (i.e., with a tarpaulin or vegetated) to minimise the risk of rain/wind erosion. Vegetation will be established as soon as possible on all exposed soils;
- In the event of an extended dry period, stockpiles will be dampened using water to minimise the risk of airborne particles entering watercourses;

- Excavations will remain open for as little time as possible before the placement of fill to minimise the potential of water ingress into excavations;
- Management/Response plans will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt run-off;
- Silt fencing or other appropriate measures shall be put in place downstream of exposed soils or soil stockpiles

Accidental Spills and Leaks

To avoid and manage accidental spills and leaks a series of measures listed below will be implemented. The main contractor and sub-contractors will be responsible for ensuring their implementation:

- An Emergency Plan for the site will be established by the main contractor prior to work commencing at the site. The Emergency Plan will contain contact details for statutory bodies such as the NPWS, Fingal Co. Co. and IFI. All site workers will be made aware of the plan and its location in the site offices;
- There will be no refuelling of machinery within or near the watercourses of the Broadmeadow-Ward River network. Refuelling will take place at designated locations at distances of greater than 50m from the watercourse;
- No vehicles will be left unattended when refuelling and a spill kit including an oil containment boom and absorbent pads will be on site at all times;
- Any fuel needed to be stored on the site will be stored appropriately and at a location that is set back from the river. All other construction materials will be stored in this compound. The compound will also house the site offices and portable toilets. This compound will either be located on ground that is not prone to flooding or will be surrounded by a protective earth bund to prevent inundation;
- All vehicles will be regularly maintained and checked for fuel and oil leaks;
- All liquids, solids and powder containers will be clearly labelled and stored appropriately in sealable containers. Storage of fuels and oils will be in the main contractor's compound only;
- Spill protection equipment such as spill kits, absorbent mats, oil booms, and sand will be available for use in the event of an accidental spill. These will be disposed of correctly if used and replaced with new ones immediately. Disposal records for used absorbent materials will be retained by the Site Manager;
- The contractor shall implement measures for the regular inspection of bunds and emptying of rainwater (when uncontaminated). Bunding

	must have a minimum capacity of 110% of the volume of the largest tank or 25% of the total storage capacity, whichever is greater. Bunding shall be impermeable to the substance that is being stored in the tank; • The use of settling lagoons, settling tanks, or equivalent, with outflow control measures may be used for the interception of surface water or groundwater pumped from an active working area; • If a spillage of a hazardous material to groundwater occurs, the groundwater will be contained and pumped to a tank or holding vessel prior to shipment off site for disposal. The contractor will maintain disposal records. The contractor will identify the cause of the spillage and mitigation measures and controls will be put in place to prevent a repeat. The CEMP for the site will be updated and contractors and sub-contractors will be made aware of the amendments; • The Contractor will clean equipment prior to delivery to the site. The Contractor will avoid using any equipment which leaks fuel, hydraulic oil, or lubricant. The Contractor will maintain equipment to ensure efficiency and to minimise emissions; • No excavation shall take place below the water-table on the site; • Management/Response plans will be implemented to identify mobilisation of soil particles/pollution and initiate the interception and treatment of pollution/silt runoff. **Changes to runoff and flow pathways** The proposed development will require the removal of the existing site drainage system and provision of a new system. Before the operation of the new drainage system, mitigation measures to minimise effects on runoff and flow pathways involve the following: • The contractor will construct a site compound at a location remote from any drains or open excavations • Vegetation will be established as soon as possible on all exposed soils.
Noise and Vibration	**Construction Phase - Noise** With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*. Whilst construction noise and vibration impacts are expected to vary during the construction phase depending on the distance between the activities and noise sensitive buildings, the contractor will ensure that all best practice noise and vibration control methods will be used, as

necessary in order to ensure impacts at off-site noise sensitive locations are minimised.

The best practice measures set out in BS 5228 (2009) Parts 1 and 2 includes guidance on several aspects of construction site mitigation measures, including, but not limited to:

- Selection of quiet plant.
- Noise control at source.
- Screening.
- Liaison with the public
- Monitoring

A detailed comment is offered on these items in the following paragraphs. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise and vibration monitoring, where required.

Selection of Quiet Plant

This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action should be to identify whether or not said item can be replaced with a quieter alternative.

Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

Referring to the potential noise generating sources for the works under consideration, the following best practice mitigation measures should be considered:

- Site compounds will be located in excess of 30m from noise sensitive receptors within the site constraints. The use lifting bulky items, dropping and loading of materials within these areas should be restricted to normal working hours.
- For mobile plant items such as dump trucks, excavators and loaders, the installation of an acoustic exhaust and/or maintaining enclosure panels closed during operation can reduce noise levels by up to 10dB. Mobile plant should be switched off when not in use and not left idling.

- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system or utilising an acoustic canopy to replace the normal engine cover. For concrete mixers, control measures should be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.

Screening

Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. Construction site hoarding will be constructed around the site boundaries as standard. The hoarding will be constructed use standard plywood material to provide adequate sound insulation.

In addition, careful planning of the site layout will also be considered. The placement of site buildings such as offices and stores will be used, where feasible, to provide noise screening when placed between the source and the receiver.

Liaison with the Public

A designated environmental liaison officer will be appointed to site during construction works. Any noise complaints should be logged and followed up in a prompt fashion by the liaison officer. In addition, where a particularly noisy construction activity is planned or other works with the potential to generate high levels of noise, or where noisy works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Monitoring

Where required, construction noise monitoring will be undertaken at periodic sample periods at the nearest noise sensitive locations to the development works to check compliance with the construction noise criterion.

Noise monitoring should be conducted in accordance with the International Standard ISO 1996: 2017: *Acoustics - Description, measurement and assessment of environmental noise.*

Project Programme

The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. During excavation or when other high noise generating works are in progress on a site at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to prevent unacceptable disturbance at any time.

	Construction Phase - Vibration The vibration from construction activities will be limited to the values set out in Tables 8.2 and 8.3 in Chapter 8 of the EIAR. Magnitudes of vibration slightly greater than those in the table are normally unlikely to cause cosmetic damage, but construction work creating such magnitudes should proceed with caution. Limit values have been provided for soundly constructed residential and commercial properties. The best practice mitigation measures set out below: • Liaison with the public • Monitoring • Vibration Control at Source **Liaison with the Public** A designated environmental liaison officer will be appointed to site during construction works. Any vibration complaints will be logged and followed up in a prompt fashion by the liaison officer. In addition, where a particular vibration construction activity is planned or other works with the potential to generate high levels of vibration, or where vibration works are expected to operate outside of normal working hours etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the vibration works. **Monitoring** Construction vibration monitoring will be undertaken at periodic sample periods at the nearest noise sensitive locations to the development works to check compliance with the construction vibration criterion. **Vibration Control at Source** If replacing a vibration item of plant is not a viable or practical option, consideration will be given to control "at source". This refers to the modification of an item of plant or the application of improved vibration reduction methods in consultation with the supplier.
Air and Climate	*Air Quality* The pro-active control of fugitive dust will ensure the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released. The main contractor will be responsible for the coordination, implementation and ongoing monitoring of the dust management plan. The key aspects of controlling dust are listed below. Full details of the dust minimisation plan can be found in Appendix 9.2. • The specification and circulation of a dust management plan for the site and the identification of persons responsible for managing dust control and any potential issues;

- The development of a documented system for managing site practices with regard to dust control
- The development of a means by which the performance of the dust management plan can be monitored and assessed;
- The specification of effective measures to deal with any complaints received.

At all times, the procedures within the plan will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust would be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations. The proceduses to rectify the problems are set out in Appendix 9.2 of the EIAR (Dust Management Plan).

Dust nuisance is defined when air quality standards relating to dust deposition and PM10 are exceeded. Where levels exceed specified air quality limit values, dust generating activities shall immediately cease and alternative working methods shall be implemented.

In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of a Dust Management Plan (see appendix 9.2). Provided the dust management measures outlined in the plan (see Appendix 9.2) are adhered to, the air quality impacts during the construction phase will not be significant. Regard has also been taken for the import of infill materials from off-site locations and potential dust impacts as a result of this will also be mitigated. With the implementation of all mitigation measures they will be no impact on the Broad Meadow River.

Climate

Construction traffic and embodied energy of construction materials are expected to be the dominant source of greenhouse gas emissions as a result of the construction phase of the development. Construction vehicles, generators etc., may give rise to some CO2 and N2O emissions. **However, due to short-term and temporary nature of these works, the impact on climate will not be significant.**

Nevertheless, some site-specific mitigation measures can be implemented during the construction phase of the proposed development to ensure emissions are reduced further. In particular the prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.

Mitigation Measures (Construction)

- Use of rubble chutes and receptor skips during construction activities.

	• During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents. • Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un- surfaced roads will be restricted to essential site traffic only. • Re-suspension in the air of spillages material from trucks entering or leaving the site will be prevented by limiting the speed of vehicles within the site to 10kmh and by use of a mechanical road sweeper. • The overloading of tipper trucks exiting the site will not be permitted. Aggregates will be transported to and from the site in covered trucks. • Where the likelihood of windblown fugitive dust emissions is high and during dry weather conditions, dusty site surfaces will be sprayed by a mobile tanker bowser. • Wetting agents shall be utilised to provide a more effective surface wetting procedure. • Exhaust emissions from vehicles operating within the construction site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles and plant, rather than just following breakdowns; the positioning of exhausts at a height to ensure adequate local dispersal of emissions, the avoidance of engines running unnecessarily and the use of low emission fuels. • All plant not in operation shall be turned off and idling engines shall not be permitted for excessive periods. Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods. • Material stockpiles containing fine or dusty elements including soils shall be covered with tarpaulins. Where drilling or pavement cutting, grinding or similar types of stone finishing operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers. All concrete cutting equipment shall be fitted with a water dampening system. • A programme of air quality monitoring shall be implemented at the site boundaries for the duration of construction phase activities to ensure that the air quality standards relating to dust deposition and PM10 are not exceeded. Where levels exceed specified air quality

	limit values, dust generating activities shall immediately cease and alternative working methods shall be implemented. • A complaints log shall be maintained by the construction site manager and in the event of a complaint relating to dust nuisance, an investigation shall be initiated. • Dust netting and site hoarding shall be installed along the south, east, and west site boundaries to minimise the propagation of fugitive windblown dust emissions falling on third party lands and existing residential areas. • Table 9.8 of the EIAR presents a summary of dust control techniques which will be implemented at the site during constuction activities.
Landscape and Visual Impact	Construction Stage will be programmed over a number of years resulting in ongoing infrastructure, building and related works for some period of time. These are generally destructive and visually adverse in nature, but temporary and short term. Best practice site management will be employed including appropriately scaled and located hoarding to screen the site from viewers along Glen Ellan Road and the residential areas to the south, as well as areas to the west at Applewood.
Traffic and Transportation	• The main contractor as part of their site set up arrangements, shall appoint a Coordinator responsible for the implementation of a Construction Stage Mobility Management Plan and shall carry out the following tasks as part of its role: o Encourage staff to avoid using of their cars and use alternative modes of transport in order to reduce the number of cars on the road and the need of car parking spaces. o Provide an extensive information service for public transport options and routes at a public location(s) within the development for construction workers. o Update the public transport information adjacent to the development on an ongoing basis. o Advise company staff of tax incentives for public transport and bicycles. • Due to the proximity of the proposed site along well-serviced bus routes and being well served by cycle lanes, it is intended to limit construction staff parking and to encourage the use of public transport. A limited number of car parking spaces may be provided for senior construction managers within the development site. Suitable locations in the surrounding area may be identified where staff can park and link to public transportation. • For those wishing to cycle to and from the site, dedicated cycle parking will be provided for the duration of the works within the site. Shower facilities and lockers will also be provided.

	• A detailed Construction and Traffic Management Plan will be prepared by the contractor and agreed with the Local Authority before commencing works on site, which must describe the following: o Dedicated construction haul routes, which will be identified and agreed upon with the local authority before the commencement of construction activities on site. o A dedicated "construction site"' access/egress system to be implemented during the construction phases. o Manage the entry and exit of heavy vehicles to and from the site. The assignment of staff to assist pedestrians and traffic flow when heavy vehicle movements occur on the roads. o Define schedules for the entry and exit of materials and machinery to limit the generation of noise on the network to specific time slots. o Adequate signposting will be located on-site to ensure the safety of all road users and construction workers. o All heavy vehicles spilling solid material on the road must cover the material to prevent dust being thrown onto the road. o All vehicles should wash their wheels, when necessary, when leaving the site to prevent dust being thrown onto the road. o Hoarding will be set up around the perimeter to prevent pedestrian access. o A material storage zone will also be provided in the Construction Compound area. This storage zone will include material recycling areas and facilities. o The contractor will be obliged to ensure that any sub-contractors engaged on the site are made fully aware of the required mitigation measures and that they are properly implemented as part of any works that they undertake.
Material Assets	*Water Supply* • Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence. • All water mains will be cleaned, sterilised and tested to the satisfaction of the Uisce Éireann/Local Authority before connection to the public water main. • All connections to the public water main will be carried out under the supervision of the Uisce Éireann /Local Authority. *Foul Sewerage* • Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence. • Foul water pipes to be laid with sufficient falls to ensure self-cleansing velocity.

	• Foul pipes will be carefully laid to minimise the potential for cross-connections. *Electricity* • Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence. • All works will be carried out in accordance with ESB Networks methods and standards • Live connections to the existing electricity network will only be made by ESB Networks *Gas* • Additional survey works will be carried out to confirm the location of existing using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence. • Gas Networks Ireland will take full responsibility for the installation of the gas pipework required to serve the site. • All work will be carried by specialist sub-contractors with specific training for working on gas main networks. *Telecommunications* • Additional survey works will be carried out to confirm the location of existing services using service records, GPR surveys and slit trenches to ensure that their position is accurately identified before excavation works commence. • All works will be carried out by Eir & Virgin Media methods and standards • Live connections to the existing electricity network will only be made by Eir & Virgin Media
Waste Management	A project specific RWMP has been prepared in line with the requirements of the guidance document issued by the DoEHLG. Adherence to the high-level strategy presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery, and disposal of waste material generated during the construction phase of the proposed development. Waterman Moylan Consulting Engineers have estimated that the total volumes of material to be excavated are as follows: Cut will be 33,298.31 m^3, Fill 16,784.53 m^3 and Net 16,513.78 m^3. It is proposed that 90 - 100% of this will be reused on site for Landscaping purposes. Contractor(s) will endeavor to ensure material taken offsite is reused or recovered off-site or disposed of at authorised facility. In addition, the following mitigation measures will be implemented: • Building materials will be chosen with an aim to 'design out waste'. • On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling, and recovery – it is

	anticipated that the following waste types, at a minimum, will be segregated: • Concrete rubble (including ceramics, tiles, and bricks). • Plasterboard. • Metals. • Glass; and • Timber. • Left over materials (e.g., timber off-cuts, broken concrete blocks/bricks) and any suitable construction materials shall be re-used on-site, where possible. • All waste materials will be stored in skips or other suitable receptacles in designated areas of the site. • Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required). • A waste manager will be appointed by the main contractor(s) to ensure effective management of waste during the excavation and construction works. • All construction staff will be provided with training regarding the waste management procedures. • All waste leaving site will be reused, recycled, or recovered where possible to avoid material designated for disposal. • All waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licenced facilities; and • All waste leaving the site will be recorded and copies of relevant documentation maintained. These mitigation measures will ensure that the waste arising from the construction phase of the development is dealt with in compliance with the provisions of the *Waste Management Act 1996*, as amended, associated Regulations, the *Litter Pollution Act 1997* and the *EMR Waste Management Plan (2015 - 2021)*. It will also ensure optimum levels of waste reduction, reuse, recycling, and recovery are achieved and will encourage sustainabl consumption of resources.
Archaeological, Architectural & Cultural Heritage	*Archaeology* No evidence of an archaeological site was identified within RMP DU011-080. As such, no further specific archaeological mitigation is required for this particular site. It is acknowledged that preservation in-situ of archaeological remains is the preferred option for the conservation of the archaeological resource. Due consideration was given by the Design Team to the preservation in-situ of ring-ditch identified in AA1 and the smaller remains in AA2-3. The design on this site has strived to create a balance between built and unbuilt, rather than maximise the development potential of the site. This includes the

	establishment of a park in the northern section of the site and the retention of the townland boundary as a green corridor. For these reasons, preservation by record is being proposed. We have set out further information below, in this regard. The preservation of key landscape characteristics and existing features of the site has guided the landscaping proposals set out for the scheme. The focus has been to retain the primary elements of the existing ecological network of hedgerows around the site, most notably the central north-south linear hedgerow (townland boundary), and the woodland amenity along the Broadmeadow River. In doing so, a connected linear spine of public open space is formed that provides for shared ecological, open space, recreation and SuDs functions. The central spine concept proposed directly aligns with the green infrastructure vision and principles of the Fingal County Council Development Plan (2023-2029) and the Estuary West Masterplan (2019). In consultation with the Department of Education and Skills, the applicant has agreed to reserve a 0.46ha site within the applicants ownership to accommodate a future school sufficient to cater for a 16-24 classroom school as per the requirement of Estuary West Masterplan (2019). The future school will provide for significant community and social infrastructure for the locality. This together with the obligation to set back the development site from Glen Ellan Road to protect a corridor for future Bus Connects and existing wayleave for local infrastructure services, has rendered a substantial portion of the site undevelopable. The current level of density proposed on the subject site is in alignment with the standards set by Estuary West Masterplan. Given the design and planning rationale as detailed above, coupled with the truncated nature of the identified archaeological remains on site, preservation by record of the features in AA1–3 will be carried out prior to the commencement of construction. This will be undertaken by a licence eligible archaeologist in consultation with the National Monuments Service of the DoHLGH. An archaeological wade survey, including metal detection, will be carried out at the location of the outfall into the River Broadmeadow. This will be undertaken by a licence eligible archaeologist in consultation with the National Monuments Service of the DoHLGH. All topsoil stripping associated with the proposed development will be monitored by a suitably qualified archaeologist. If any features of archaeological potential are discovered during the course of the works further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the DoHLGH. *Architecture*

	The intervention to the wall leading to the protected structure of Newtown Bridge will be reconstructed using materials recovered from the original wall. As there are no further predicted impacts on the architectural resource, no further mitigation is deemed necessary. *Cultural Heritage* During the course of topsoil stripping a written and photographic record describing the form of the townland boundaries to be impacted upon will be included in the monitoring report.

The following mitigation measures are outlined in the Natura Impact Statement (NIS) prepared by Enviroguide Consulting.

Mitigation 1: Water Quality Protection

The following applies to all stages of the Construction Phase for the Proposed Development unless specific measures have been identified. As it has been identified that the Proposed Development could potentially affect Special Conservation Interests (SCI)/ Qualifying Interests (QI) species associated with the aforementioned nearby designated sites during the Construction Phase as a result of water quality impacts, the mitigation measures listed in the following sections will be undertaken.

Construction Phase Best Practice

The following measures, designed to protect surface water quality, will serve to prevent any negative effects occurring in the Malahide Estuary SAC (000205) and Malahide Estuary SPA (004025) as a result of Construction Phase surface water discharges from the Site. These mitigation measures will treat the source (e.g., refuelling of plant to be carried out at designated refuelling station locations on Site) or remove the pathway (e.g., no release of wastewater generated on-Site to ground, drains or adjacent watercourses during the Construction Phase).

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990.

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. Procedures and relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction sites, Guidance for Consultants and Contractors;
- Construction IndustryResearch and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004;
- Construction Industry Research and Information Association CIRIA C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006);
- CIRIA C648: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

In addition, standard best practice measures will be implemented throughout the Construction Phase to ensure no construction-related pollutants are discharged into the surface water or groundwater at and

surrounding the Site, that could subsequently be transferred by same to the SACs/SPAs. The below presents the standard best practice measures that will be implemented on Site during the Construction Phase of the Proposed Development in addition to the measures outlined in the Construction and Environmental Management Plan (CEMP) (Waterman Moylan, 2024) accompanying this application:

- Silt fencing will be used along any streams and/or drainage ditches on Site which may have a hydrological link to nearby designated sites.
- Any drains or sewers, where present, which could act as pathways for contamination from the Site will be blocked where required.
- Location of stilling/settling ponds will take into account groundwater vulnerability at the Site and will be located in suitable areas and at distance from any watercourses hydrologically connected to nearby designated sites.
- Discharge water generated during placement of concrete will be stored and removed off Site for treatment and disposal.
- There will be no washing out of any concrete trucks on Site. Any washing of chutes will be carefully collected in a designated container which will be subsequently sent off-site for compliant waste management.
- Specific areas for storage, delivery, loading/unloading of materials will be designated, which will have appropriate containment/spill protection measureswhere required. These storage areas will be located in suitable areas and at distance from any watercourses hydrologically connected to nearby designated sites.
- Leachate generation from stockpiles or waste receptacles will be prevented by using waterproof covers.
- Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.
- Appropriate bunding, storage and signage arrangements for all deleterious substances will be used.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans will be included within the Contractor's CEMP and the details of which will be communicated, resourced and implemented for the duration of the works.
- Control measures and spill clean-up equipment adequate to treat spills at the Site will be available and staff will be trained and experienced in using said equipment.
- A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be available at all times and shall include as a minimum: valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.
- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- A plan for dealing with any unknown drains or services which may be encountered during the works will be set out and implemented.
- Any surface water inflow into the main areas of excavation will be minimised where possible.

Maintenance of Plant and Machinery

- All plant and equipment will be regularly cleaned and properly maintained.

- There will be no washing out of any concrete trucks on Site.
- Pumped concrete will be monitored to ensure there is no accidental discharge and will be carried out in dry weather and with impermeable pouring mats laid down where possible.

Building/Road Network and Services

- Constructing buildings and roads above flood level to ensure that backflows through the surface water outfalls will not occur.
- The Proposed Development's road network will be finished with tarmac or asphalt surface which will discharge run-off to a piped drainage system, and surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.
- All car parking and refuel areas at the Site will be located on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.

Earthworks Mitigation

The proposed earthworks mitigation measures for the Construction Phase includes:

- A street sweeper will attend Site regularly to clean the road when there are truck movements in and out of the Site;
- Hard surface roads will be regularly swept to remove mud and aggregate materials from their surface;
- Public roads outside the Site will be regularly inspected for cleanliness, and cleaned as necessary;
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind; and
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods.

Storage and Use of Fuels, Oils, and Chemicals

- Appropriate bunding, storage and signage arrangements for all deleterious substances (e.g., fuels, oils, and chemicals) will be used.
- Fuels, lubricants, and hydraulic fluids for equipment used on the construction Site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice (Enterprise Ireland BPGCS005).
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or recycling.
- Diesel tanks, used to store fuel for the various items of machinery, will be self- contained and double-walled.
- Spillage and leaks of oil from cars parked in the Development during the Construction Phase are unavoidable. To reduce the potential impacts, oil interceptors will be incorporated into the Site drainage design.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the Site and properly disposed of.
- Refuelling will be carried out from tanks or delivery vehicles on a designated impermeable surface and will not be left unattended.

- Plant will not be left running when not in use (i.e., no idling) and plant with dust arrestment equipment will be used where practical.

Spill/Emergency Response Plans

Robust and appropriate Spill Response Plan and Site Environmental Emergency Plans (SEP) will be implemented for the duration of the works:

- Identifying fuel storage and refuelling locations on designated areas within the compound, away from drainage ditches/waterbodies (where present), and on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.
- Identifying spill kit locations (spill kits will be required for each piece of heavy equipment (e.g., excavators, loaders, trucks, etc.,) which will be at least 21L drum size each with spill pads, sorbent, small boom, plastic garbage bag and gloves).
- A specially trained and dedicated Environmental and Emergency Spill Response team will be appointed before the commencement of works on Site.
- Staff will be trained and experienced in using appropriate control measures and spill kits on-Site, and will be familiar with the location of all spill kit locations and the Site layout.

A register will be kept of all hazardous substances either used on Site or expected to be present. The register shall be available at all times and shall include as a minimum:

- Valid safety sheets; Health & Safety, environmental controls to be implemented when storing, handling, using and in the event of spillage of materials;
- Emergency response procedures/precautions for each material;
- PPE is required when using the material.

Waste Management and Disposal

Waste management and disposal will comprise the following:

- All existing services will be mapped, and a plan will be put in place to decommission/divert and manage any drains or sewers which are associated with the Site.
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for Site personnel. All associated waste will be removed from the Proposed Development Site by a licenced waste disposal contractor.
- Mixer washings are not to be discharged into ground or drainage ditches and will be collected and disposed of at a suitably licenced facility.

In addition, a minimal waste approach of reduction, reuse and recycling will be utilized where practicable/appropriate. Where this cannot be carried out, all wastes will be disposed of at licenced waste facilities.

The timing of the mitigation measures is outlined below. Season-specific activities include Mitigations 4, 8, 9, and 11.

Measure	Monitoring	Timing of works
CONSTRUCTION PHASE		
Mitigation 1: Standard Surface Water Protection Measures	Ongoing monitoring by contractor.	Throughout the Construction Phase
Mitigation 2: Reduction of Dust Related Impacts	Ongoing monitoring by contractor.	Throughout the Construction Phase
Mitigation 3: Tree Protection	Ongoing monitoring by contractor or arborist.	Installed prior to any construction works
Mitigation 4: Invasive Species Removal	Ongoing monitoring by contractor and Ecologist.	Preferably June/July
Mitigation 5: Biosecurity	Ongoing monitoring by contractor.	Throughout the Construction Phase
Mitigation 6: Reduction of Noise Related Impacts	Ongoing monitoring by contractor.	Throughout the Construction Phase
Mitigation 7: Construction Phase Lighting	Ongoing monitoring by contractor	Throughout the Construction Phase
Mitigation 8: Pre-Clearance Survey	Undertaken by the Ecologist and/or bat specialist.	Prior to the commencement of works • Optimal otter survey period is late summer. • Optimal badger survey period is November – April. • Bat roost assessment can be undertaken at any time of the year.
Mitigation 9: Vegetation Clearance	Any Site vegetation clearance is subject to supervision by an Ecologist and a phased approach.	Please see vegetation clearance timing table below.
Mitigation 10: Waste and Site Management	Ongoing monitoring by contractor.	Throughout the Construction Phase
Enhancement 1: Hedgehog Highways	The placement and construction of these structures should be carried out under the supervision of an Ecologist to ensure they are fit for purpose.	Installed during the Construction Phase
Enhancement 2: Pollinator Habitat	The placement and construction of these structures should be carried out under the supervision of an Ecologist to ensure they are fit for purpose.	Installed during the Construction Phase

Enhancement 3: Swift Brick Scheme	The placement and construction of these structures should be carried out under the supervision of an Ecologist to ensure they are fit for purpose.	Installed during the Construction Phase
Enhancement 4: Bat Boxes	The placement and construction of these structures should be carried out under the supervision of an Ecologist to ensure they are fit for purpose.	Installed during the Construction Phase
Enhancement 5: Hibernacula	The placement and construction of these structures should be carried out under the supervision of an Ecologist to ensure they are fit for purpose. Should any damage occur, the Ecologist will be contacted and appropriate repairs or replacements will be made.	Installed during the Construction Phase
Enhancement 6: Seedbank Retention	Ongoing monitoring by contractor and Ecologist.	Installed during the Construction Phase
OPERATIONAL PHASE		
Mitigation 11: Invasive Species Management	An Invasive Species Survey will be carried out by a qualified Ecologist during the next botanical season after soft landscaping has been completed.	May – September
Mitigation 12: Bats	Ongoing monitoring by contractor/management and/or suitably qualified ecologist.	Throughout Operational Phase
Enhancement 7: Meadow Restoration	Ongoing monitoring by contractor/management and/or suitably qualified ecologist.	Throughout Operational Phase

Ecological Feature	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Bats	Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist								Preferred period for tree-felling		Tree felling to be avoided unless confirmed to be devoid of bats by an ecologist	
Breeding Birds	Vegetation clearance permissible		Nesting bird season No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.						Vegetation clearance permissible			
Hibernating mammals (namely Hedgehog)	Mammal hibernation season No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.				Vegetation clearance permissible						Mammal hibernation season No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of hibernating mammals by an ecologist.	
Amphibians	Amphibian Hibernation Season No habitat clearance permissible		Amphibian breeding season No habitat destruction unless confirmed to be devoid of tadpoles and other signs of amphibians					Vegetation / Site clearance permissible			Amphibian Hibernation Season No habitat clearance permissible	
Common Lizard	Lizard Hibernation Season No habitat clearance permissible			Active period Habitat (scrub, tall sward grass) clearance permissible							Lizard Hibernation Season No habitat clearance permissible	

8. Proposed Construction Phasing and Programme

The phasing plan is as follows:

- Phase 1 – 171 no. units (75 no. houses, 16 no. townhouses, 80. no apartments)
- Phase 1a – 164 no.units (164 no. apartments, creche, retail unit)
- Phase 2 – 142 no. units (126 no. apartment units)
- Phase 3 – 163 no. units (41 no. houses, 18 no. duplexes, 104 no. apartments)

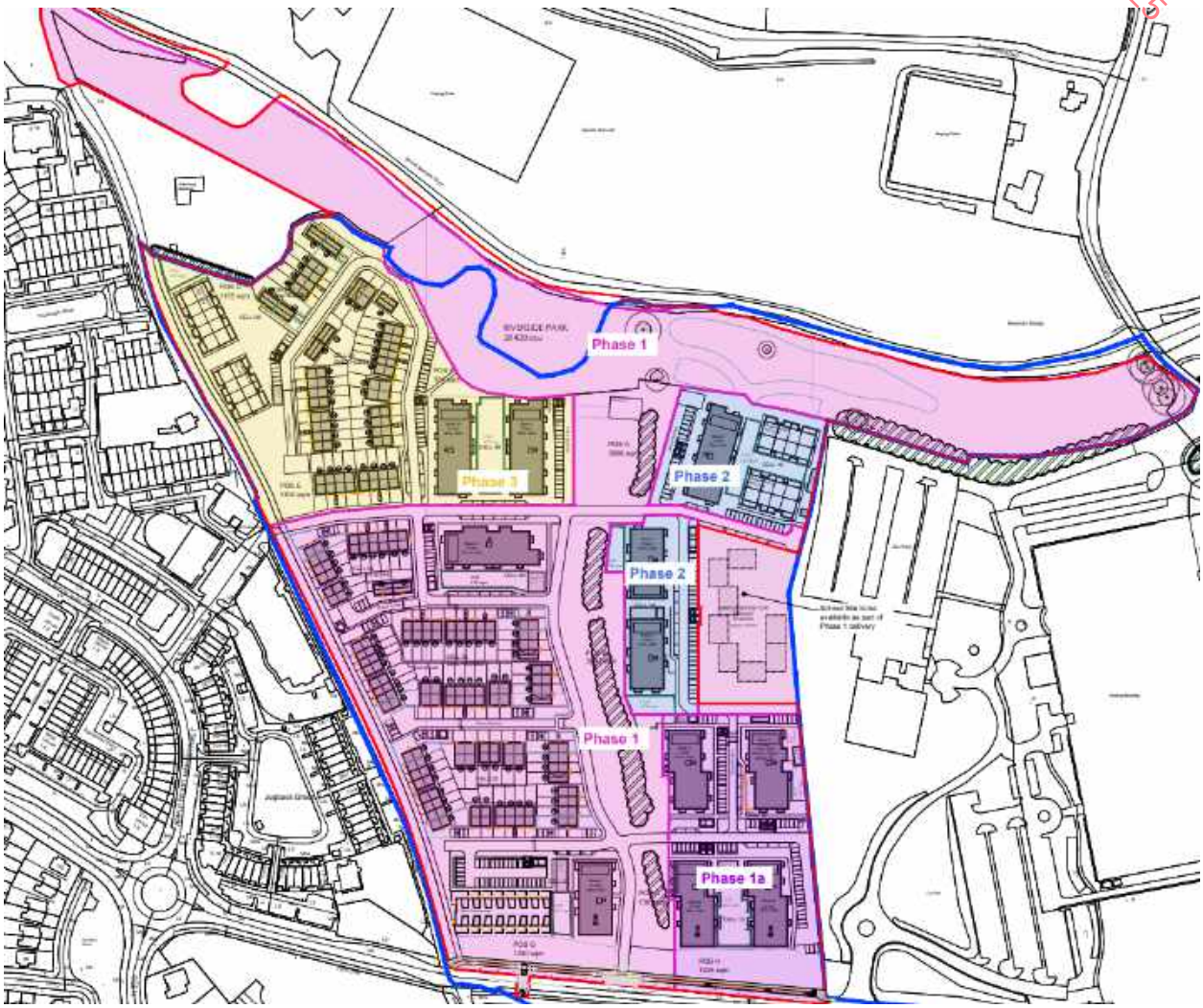


Figure 8-1 Phasing Plan

Works adjacent to a Special Conservation Area

There are no European sites within the site. However, the Malahide Estuary SAC is located c. 1.5 km east of the proposed development and the Malahide Estuary SPA is located c. 1.1km east of the site. Works along the northern boundary have been kept to a minimum to minimise the impact on the Broadmeadow River and subsequently the European sites located downstream of the river.

North Detention Basin Outfall

As part of the surface water treatment works and due to the site topography, there is a requirement to locate a detention basin to the north of the subject site. The northern detention basin has been designed over an existing low lying area in order to minimise the amount of works in this area.

One gravity connection outfall from the detention basin to discharge into the Broadmeadow River is required. It is proposed to provide this gravity connection through a swale with overland flow connection to the Broadmeadow River. The works will be limited to landscaping for a small depression to direct water towards the river and provide appropriate planting within the proposed swale. The depth of the swale has been kept to a minimum, taking into account the topography of the site and the Invert Level of the outfall. As part of these works, estimated to take c.1 week to complete, mitigation provided will include limiting topsoil strip to the immediate works area (along the line of the swale only), utilising precast elements (manhole upstream of the swale) to limit concrete pouring and for speed of construction and immediate reinstatement of the area upon completion of the outfall swale. Access to this area will be prohibited during the construction works save for the construction of the swale. No works are proposed in the river.

These works will not be undertaken during wet weather or when wet weather is forecast. A temporary silt fence will be erected down gradient of the works area and will remain in place until the ground has been reinstated and vegetation has become re-established

The general mitigation measures set out in this report will be employed along with all the measures set out in section 7 of this report. Additionally, daily monitoring of the stream will be carried out during these processes.

General Measures

To protect the SAC, the existing stream and the environment generally, and to minimise the potential impact on the trees and hedgerows specific measures will be put in place during these works.

Prior to any works taking place, silt fences will be installed alongside the stream within the site and will be maintained during the duration of the works. This silt fence provides a barrier that prevents the silts that are caught in the runoff to enter the stream, filtering it and preventing it from contaminating the stream.

Silt fence installation includes the installation of the geotextile fabric and the support post and will be done manually by experienced labour or using a fencing machine. The geotextile must be trenched and backfilled in.

The silt fence will be inspected daily to assure that there is no damage to the same and that is working correctly. If any damage is detected, it will be repaired immediately and an assessment of possible contamination of the stream will be carried out.

The excavation of the detention basin will be carried out by mechanical means. The excavated material will be stored away from the stream to avoid any spillage. The excavation will be battered to a safe slope to allow both.

Any groundwater encountered during the excavation will be pumped out of the excavation into a silt trap. This silt trap will consist of a geotextile and zero fines stone (or similar agreed) that will filter the pumped water from debris, and it will be conducted to the stream once treated.

Any pumps/equipment used to remove the water from the excavation will be placed in a secure manner and in drip trays, to avoid any soil contamination from oils/fuel that might be spilled from the machine. Drip trays will be suitable in size for the machine using them. No undersize drip trays will be allowed, and they should be placed on a flat surface if deemed possible.

Silt traps will be inspected daily and cleaned as appropriate. A log of the inspections will be kept on-site, including the findings and any remedial action if needed.

9. Conclusion

This Construction and Environmental Management Plan has been prepared by Waterman Moylan as part of a response to a Further Information Request (FIR) received by Fingal County Council for a proposed development of their lands at Holybanks, Swords, Co. Dublin.

While 2 no. development options have been proposed, this Construction and Environmental Management Plan applies to both proposals.

UK and Ireland Office Locations

Appendix 9.1

Ambient Air Quality Standards

No Change

Appendix 9.2

Dust Minimisation Plan

No Change

Appendix 10.1

Photomontages

Slight Change

Verified Photomontages and CGIs

Proposed

Holybanks LRD

Prepared by Model Works Ltd
for Cairn Homes PLC

April 2025

.MODEL WORKS

MODEL WORKS

project: Holybanks LRD

viewpoint: **View Location Map**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens)

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 15:44 Canon 5D Mark II 24 mm Lens	*location:* E 717498.517 N 747997.727	*viewpoint:* **View 05 Existing** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens)

Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 15:44
Canon 5D Mark II
24 mm Lens

location:
E 717498.517 N 747997.727

viewpoint: **View 05 Proposed**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 12:13
Canon 5D Mark II
24 mm Lens

location:
E 717664.973 N 747956.739

viewpoint: **View 06 Existing**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 12:13
Canon 5D Mark II
24 mm Lens

location:
E 717664.973 N 747956.739

viewpoint: **View 06 Proposed**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

Trees shown at approximately 15 year maturity

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 12:13
Canon 5D Mark II
24 mm Lens

location:
E 717664.973 N 747956.739

viewpoint: **View 06 Proposed**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 12:44 Canon 5D Mark II 24 mm Lens	*location:* E 717812.997 N 747884.633	*viewpoint:* **View 07 Existing** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 12:44
Canon 5D Mark II
24 mm Lens

location:
E 717812.997 N 747884.633

viewpoint: **View 07 Proposed**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 12:44 Canon 5D Mark II 24 mm Lens	*location:* E 717812.997 N 747884.633	*viewpoint:* **View 07 Proposed** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS

project: Holybanks LRD

photography: 05-06-2024 13:25
Canon 5D Mark II
24 mm Lens

location:
E 718073.083 N 747918.038

viewpoint: **View 08 Existing**

issued: 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 13:25 Canon 5D Mark II 24 mm Lens	*location:* E 718073.083 N 747918.038	*viewpoint:* **View 08 Proposed** *issued:* 04/04/2025	

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 13:28 Canon 5D Mark II 24 mm Lens	*location:* E 718218.719 N 747939.939	*viewpoint:* **View 09 Existing** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 13:28 Canon 5D Mark II 24 mm Lens	*location:* E 718218.719 N 747939.939	*viewpoint:* **View 09 Proposed** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 12:24 Canon 5D Mark II 24 mm Lens	*location:* E 717703.806 N 747917.129	*viewpoint:* **View 12 Existing** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 12:24 Canon 5D Mark II 24 mm Lens	*location:* E 717703.806 N 747917.129	*viewpoint:* **View 12 Proposed** *issued:* 04/04/2025

Angle of View 73° Horizontal (24 mm Lens) | Angle of View 39° Horizontal (50 mm Lens)

Trees shown at approximately 15 year maturity

MODEL WORKS	*project:* Holybanks LRD	*photography:* 05-06-2024 12:24 Canon 5D Mark II 24 mm Lens	*location:* E 717703.806 N 747917.129	*viewpoint:* **View 12** *issued:* 04/04/2025

MODEL WORKS

project: Holybanks LRD

viewpoint: **View Location Map**

issued: 04/04/2025

MODEL WORKS

project: Holybanks LRD

viewpoint: **CGI 01**

issued: 04/04/2025

MODEL WORKS

project: Holybanks LRD

viewpoint: **CGI 02**

issued: 04/04/2025

MODEL WORKS

project: Holybanks LRD

viewpoint: **CGI 03**

issued: 04/04/2025

Appendix 12.1

Resource and Waste Management Plan (RWMP)

No Change

Appendix 12.2

Operational Waste & Recycling Management Plan (OWRMP)

Slight Change

OPERATIONAL WASTE & RECYCLING MANAGEMENT PLAN

FOR DEVELOPMENT

AT

HOLYBANKS

SWORDS

CO. DUBLIN

Prepared for

Cairn Homes Properties Ltd.

Prepared by

Traynor Environmental Ltd.

Reference Number

24.107 TE

Date of Issue

9th April 2025

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Client: Cairn Homes Properties Ltd.

Traynor Env Ref: 24.107 TE

Status: Final Report

Date: 9th April 2025

Report Title:	Operational Waste & Recycling Management Plan
Doc Reference:	24.107 TE - Further Information (Townhouses)
Client:	Cairn Homes Properties Ltd.
Authorised By:	 *Nevin Traynor BSc. Env, H. Dip I.T, Cert SHWW, EPA/FAS Cert.* *Environmental Consultant*

Rev No	Status	Date	Writer	Reviewer
1.	Draft	20th August 2024	Zita Mc Cann	Nevin Traynor
2	Final	28th January 2025	Angela Kelly	Nevin Traynor
3.	Final	14th March 2025	Angela Kelly	Nevin Traynor
4.	FI Response (Townhouses)	9th April 2025	Angela Kelly	Nevin Traynor

This report refers, within the limitations stated, to the condition of the site at the time of the report. No warranty is given as to the possibility of future changes in the condition of the site. The report as presented is based on the information sources as detailed in this report, and hence maybe subject to review in the future if more information is obtained or scientific understanding changes.

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1.0 INTRODUCTION

This Operational Waste Management Strategy (the 'Strategy ') has been prepared by Nevin Traynor BSc.Env, HDIP IT, Cert SHWW, IAH of Traynor Environmental Ltd on behalf of Cairn Homes Properties Ltd. ('The Applicant ') in support of the proposed Holybanks LRD development (hereafter referred to as the 'Proposed Development') within the Fingal County Council.

The principal aim of this Strategy is to demonstrate how the Proposed Development has taken into account sustainable methods for waste and recycling management during its operation. Furthermore, with regards to waste and recycling management within the Proposed Development, this Strategy has the following aims:

- To contribute towards achieving current and long-term government, Eastern Midlands Region (EMR) and Fingal County Council targets for waste minimisation, recycling, and re-use.
- To comply with all legal requirements for handling operational waste.
- To achieve high standards of waste management performance, through giving (and continuing to give) due consideration to the waste generated by the Proposed Development during its operation; and
- To provide the Proposed Development with a convenient, clean, and efficient waste management strategy that enhances the operation of the Proposed Development and promotes recycling.

It is important to note that the Fingal County Council is part of the Eastern Midlands Region. The Eastern Midlands Region comprises of Dublin City Council, Dun Laoghaire – Rathdown, Fingal, South Dublin, Kildare, Louth, Laois, Longford, Meath, Offaly, Westmeath, and Wicklow County Council.

This Strategy provides a review of the requirements placed upon the Proposed Development under national legislation and implemented policy at all levels of government (i.e., national (Ireland), regional (EMR), district and local (Fingal). Consideration has also been given to requirements included in local standards and guidance documents (i.e. DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2022) in line with the Regional Waste Management Plan and British Standard Waste Management in Buildings, Code of Practice (BS 5906:2005) so as to comply with relevant objectives and targets.

Estimate volumes of waste generated during operation of the Proposed Development have been provided in the report which also include a breakdown of the waste management process, which details waste handling, storage area provision, and collection arrangements. All waste reduction measures are compliant with BS 5906:2005, Eastern Midlands Region (EMR) and Sustainable Urban Housing: Design Standards for New Apartments which are also discussed in this strategy.

2.0 LEGISLATION/ PLANNING POLICY

A summary of the European, national regional and local planning policy relevant to the Proposed Development is outlined in the section below. It should be noted that this summary identifies those elements of the policy or guidance applicable to waste management within the Proposed Development.

2.1 International and European Policy

The EU Waste Framework Directive (EU WFD) provides the overarching legislative framework for the collection, transport, recovery, and disposal of waste, and includes a common definition of waste. It encourages the prevention and reduction of harmful waste by requiring that Member States put waste control regimes into place. These waste management authorities and plans should ensure that necessary measures exist to recover or dispose of waste without endangering human health or causing harm to the environment and includes permitting, registration and inspection requirements.

The directive also requires Member States to take appropriate measures to encourage firstly, the prevention or reduction of waste production and its harmfulness and secondly the recovery of waste by means of recycling, re-use or reclamation or any other process with a view to extracting secondary raw materials, or the use of waste as a source of energy. The directive also puts an end to co-disposal of waste streams.

The definition of waste for the Ireland is governed by the EU WFS as:

"Any substance or object…which the holder discards or intends or is required to discard."

It is the responsibility of the holder of a substance or object to decide whether or not they are handling waste. The European Protection Agency is the authority responsible for enforcing waste management legislation in Ireland, but where there is a disagreement as to whether or not something is waste it is ultimately a matter for the courts to decide.

The European Waste Catalogue In 1994, the *European Waste Catalogue* and *Hazardous Waste List* were published by the European Commission. In 2002, the EPA published a document titled the *European Waste Catalogue and Hazardous Waste List*, which was a condensed version of the original two documents and their subsequent amendments. This document has been replaced by the EPA '*Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous'* which became valid from the 1st of June 2015. This waste classification system applies across the EU and is the basis for all national and international waste reporting, such as those associated with waste collection permits, COR's, permits and licences and EPA National Waste Database.

The European Landfill Directive is in place to reduce the negative effects of land filling on the environment and health. It aims to encourage waste minimisation and increased levels of recycling and recovery; the increased costs of land filling associated with compliance with the Directive will also encourage alternative waste management methods.

The first requirement of the regulations was a ban on the co-disposal of hazardous waste with non-hazardous waste in landfills. The Directive has also imposed a ban on whole tyres going to landfill since 2003, with this ban extending to shredded tyres from July 2006, while liquid wastes were banned from landfill from October 2007.

The Directive also brings with it, tighter site monitoring and engineering standards. This is supplemented by the European Waste Catalogue, which has extended the range of materials classified as 'hazardous', and the Waste Acceptance Criteria, which has introduced potential pre-treatment requirements.

2.2 National Legislation

The Government issued a policy statement in September 1998 titled as '*Changing Our Ways*' which identified objectives for the prevention, minimisation, reuse, recycling, recovery, and disposal of waste in Ireland. A heavy emphasis was placed on reducing reliance on landfill and finding alternative methods for managing waste. Amongst other things, Changing Our Ways stated a target of at least 35% recycling of municipal (i.e. household, commercial and non-process industrial) waste.

A further policy document '*Preventing and Recycling Waste – Delivering Change*' was published in 2002. This document proposed a number of programmes to increase recycling of waste and allow diversion from landfill. The need for waste minimisation at source was considered a priority. This view was also supported by a review of sustainable development policy in Ireland and achievements to date, which was conducted in 2002, entitled '*Making Irelands Development Sustainable – Review, Assessment and Future Action*'. This document also stressed the need to break the link between economic growth and waste generation, again through waste minimisation and reuse of discarded material.

In order to establish the progress of the Government policy document *Changing Our Ways*, a review document was published in April 2004 entitled '*Taking Stock and Moving Forward*'. Covering the period 1998 – 2003, the aim of this document was to assess progress to date with regard to waste management in Ireland, to consider developments since the policy framework and the local authority waste management plans were put in place, and to identify measures that could be undertaken to further support progress towards the objectives outlined in *Changing Our Ways*.

In particular, *Taking Stock and Moving Forward* noted a significant increase in the amount of waste being brought to local authority landfills. The report noted that one of the significant challenges in the coming years was the extension of the dry recyclable collection services.

The policy document A Waste Action Plan for a Circular Economy Ireland's National Waste Policy 2020-2025 was published on the 4th of September 2020. The 'Waste Action Plan for a Circular Economy' goes beyond the management of waste and addresses how we look at resources more broadly, capturing and maximising the value of materials that may in the past have been discarded. A key objective of this Action Plan is therefore to shift the focus away back up the product life cycle, to remove or design out harmful waste, to extend the life of the products and goods used and prevent waste arising in the first place – consistent with the concept of a zero-waste future. The document sets out a number of actions, including the following:

- A move away from landfill and replacement through prevention, reuse, recycling, and recovery.
- A Brown Bin roll-out diverting 'organic waste' towards more productive uses.
- Introducing a new regulatory regime for the existing side-by-side competition model within the household waste collection market.
- New Service Standards to ensure that consumers receive higher customer service standards from their operator.
- Placing responsibility on householders to prove they use an authorised waste collection service.
- The establishment of a team of Waste Enforcement Officers for cases relating to serious criminal activity will be prioritised.
- Reducing red tape for industry to identify and reduce any unnecessary administrative burdens on the waste management industry.
- Design of waste management equipment and systems must be approved by the supplier.
- A review of the producer responsibility model will be initiated to assess and evaluate the operation of the model in Ireland.
- Significant reduction of Waste Management Planning Regions from ten to three.

In September 2020, the government released a new policy document outlining a new action plan for Ireland to cover the period of 2020-2025. This plan '*A Waste Action Plan for a Circular Economy*' was prepared in response to the 'European Green Deal' which sets a roadmap for a transition to a new economy, where climate and environmental challenges are turned into opportunities.

It aims to fulfil the commitment in the Programme for Government to publish and start implementing a new National Waste Action Plan. It is intended that this new national waste policy will inform and give direction to waste planning and management in Ireland over the coming years. It will be followed later this year by an All of Government Circular Economy Strategy. The policy document shifts focus away from waste disposal and moves it back up the production chain. To support the policy, regulation is already being used (Circular Economy Legislative Package) or in the pipeline (Single Use Plastics Directive). The policy document contains over 200 measures across various waste areas including Circular Economy, Municipal Waste, Consumer Protection & Citizen Engagement, Plastics and Packaging, Construction and Demolition, Textiles, Green Public Procurement and Waste Enforcement.

Since 1998, the Environmental Protection Agency (EPA) has produced periodic 'National Waste (Database) Reports' which as of 2023 have been renamed Circular Economy and Waste Statistics Highlight Reports 14 detailing, among other things, estimates for household and commercial (municipal) waste generation in Ireland and the level of recycling, recovery, and disposal of these materials. The 2021 National Circular Economy and Waste Statistics web resource, which is the most recent study published, along with the national waste statistics web resource (November 2023) reported the following key statistics for 2021:

- **Generated** – Ireland produced 3,170,000 t of municipal waste in 2021. This is a 1% decrease since 2020. This means that the average person living in Ireland generated 630 kg of municipal waste in 2021Managed – Waste collected and treated by the waste industry. In 2020, a total of 3,137,000 t of municipal waste was managed and treated.
- Unmanaged – An estimated 33,000 tonnes of this was unmanaged waste i.e., not disposed of in the correct manner in 2021.
- **Recovered** – The amount of waste recycled, used as a fuel in incinerators, or used to cover landfilled waste. In Ireland 42% of Municipal waste was treated by energy recovery through incineration in 2021
- **Recycled** – Just over 1.3 million tonnes of municipal waste generated in Ireland was recycled in 2021, resulting in a recycling rate of 41 per cent. The recycling rate remains unchanged from 2020 and indicates that we face significant challenges to meet the upcoming EU recycling targets of 55% by 2025 and 65% by 2035.
- **Disposed** – The proportion of municipal waste sent to landfill also remains unchanged at 16% the same as 2020.
- **Reuse** – 54,800 tonnes of second-hand products we estimated by the EPA to have been reused in Ireland in 2021. The average annual Reuse rate per person in Ireland is 10.6 kg per person.

2.3 Regional Level

The proposed development is located in the Local Authority area of Fingal County Council (FCC). The EMR Waste Management Plan 2015 – 2021 is the regional waste management plan for the FCC area which was published in May 2015. The regional plan sets out the following strategic targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.
- Achieve a recycling rate of 50% of managed municipal waste by 2020; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €130 - €150 per tonne of waste which includes a €75 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2012. The Fingal Development Plan 2023 – 2029 came into effect in April 2023 and sets out a number of policies and objectives for the Fingal region in line with the objectives of the regional waste management plan. Waste objectives with a particular relevance to the proposed development are:

Objectives:

- **Objective IUO28** Implement the provisions of the Eastern Midlands Region Waste Management Plan 2015–2021 or any subsequent Waste Management Plan applicable within the lifetime of the Development Plan. All prospective developments in the County will be expected to take account of the provisions of the Regional Waste Management Plan and adhere to the requirements of that Plan.
- **Objective IUO29** Provide for, promote, and facilitate high quality sustainable waste recovery and disposal infrastructure/technology in keeping with the EU waste hierarchy, national legislation, and regional waste management policy to adequately cater for Fingal's growing population.
- **Objective IUO34** Require the provision of appropriate, well designed, accessible space to support the storage, separation, and collection of as many waste and recycling streams as possible in all new commercial and residential developments within the County. See also Chapter 14, Development Management Standards (Section 14.20.12: Waste Management).
- **Objective DMSO235** In the case of communal refuse storage provision, the collection point for refuse should be accessible both to the external collector and to the resident and be secured against illegal dumping by non-residents. In the case of individual houses, the applicant shall clearly show within a planning application the proposed location and design of bin storage to serve each dwelling, and having regard to the number of individual bins required to serve each dwelling at the time of the application and any possible future requirements for refuse storage/collection. The following criteria will be considered in the assessment of the design and siting of waste facilities and bring facilities:
  - The location and design of any refuse storage or recycling facility should ensure that it is easily accessible both for residents and/or public and for bin collection, be insect and vermin proofed, will not present an odour problem, and will not significantly detract from the residential amenities of adjacent property or future occupants.
  - Provision for the storage and collection of waste materials shall be in accordance with the guidelines for waste storage facilities in the relevant Regional Waste Management Plan and the design considerations contained in Section 4.8 and 4.9 of the Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities, DHLGH 2020.
  - Refuse storage for houses should be externally located, concealed / covered and adequate to cater for the size and number of bins normally allocated to a household. For terraced houses, the most appropriate area for bins to be stored is to the front of the house, which should be located in well-designed enclosures that do not to detract from visual amenity.
  - All applications shall clearly identify the waste storage and collection points and detail the anticipated waste collection schedule having regard to the impact on road users both within the development and the surrounding area.
  - Access to private waste storage in residential schemes should be restricted to residents only.
- **Objective DMSO236** Ensure all new large-scale residential and mixed-use developments include appropriate facilities for source segregation and collection of waste.
- **Objective DMSO237** Ensure all new residential schemes include appropriate design measures for refuse storage areas, details of which should be clearly shown at pre-planning and planning application stage. Ensure refuse

storage areas are not situated immediately adjacent to the front door or ground floor window unless adequate screened alcoves or other such mitigation measures are provided.

- **Objective DMSO238** Ensure the maximum distance between the front door to a communal bin area does not exceed 50 metres.

2.4 Legislative Requirements

The primary legislative instruments that govern waste management in Ireland and applicable to the project are:

- Waste Management Act 1996 (No. 10 of 1996) as amended. Sub-ordinate legislation includes:
  - European Communities (Waste Directive) Regulations 2011 (SI 126 of 2011) as amended o Waste Management (Collection Permit) Regulations (S.I No. 820 of 2007) as amended.
  - Waste Management (Facility Permit and Registration) Regulations 2007 (S.I No. 821 of 2007) as amended.
  - Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended.
  - Waste Management (Packaging) Regulations 2014 (S.I. 282 of 2014) as amended.
  - Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997)
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
  - European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
  - European Union (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended.
  - Waste Management (Food Waste) Regulations 2009 (S.I. 508 of 2009), as amended o European Union (Household Food Waste and Bio-waste) Regulation 2015 (S.I. No. 191 of 2015)
  - Waste Management (Hazardous Waste) Regulations, 1998 (S.I. No. 163 of 1998) as amended.
  - Waste Management (Shipments of Waste) Regulations, 2007 (S.I. No. 419 of 2007) as amended.
  - Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998)
  - European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994)
  - European Union (Properties of Waste which Render it Hazardous) Regulations 2015 (S.I. No. 233 of 2015) as amended.
- Environmental Protection Act 1992 (No. 7 of 1992) as amended.
- Litter Pollution Act 1997 (No. 12 of 1997) as amended.
- Planning and Development Act 2000 (No. 30 of 2000) as amended.

2.5 Responsibilities of the Waste Producer

The waste producer is responsible for waste from the time it is generated through until its legal disposal (including its method of disposal.) Waste contractors will be employed to physically transport waste to the final waste disposal / recovery site.

It is therefore imperative that the residents, commercial tenants, and the proposed facilities management company undertake on-site management of waste in accordance with all legal requirements and employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contactor handle, transport, and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

A collection permit to transport waste must be held by each waste contractor which is issued by the National Waste Collection Permit Office (NWCPO). Waste receiving facilities must also be appropriately permitted or licensed. Operators of such facilities cannot receive any waste, unless in possession of a Certificate of Registration (COR) or waste permit granted by the relevant Local Authority under the *Waste Management (Facility Permit & Registration) Regulations 2007* as amended or a waste or IED (Industrial Emissions Directive) licence granted by the EPA. The COR/permit/licence held will specify the type and quantity of waste able to be received, stored, sorted, recycled, recovered and/or disposed of at the specified site.

2.6 Fingal County Council Byelaws

The FCC "Fingal County Council (Segregation Storage, Presentation and of Household and Commercial Waste) Bye-Laws (2020)" came into use on the 1st of April 2020. These bye-laws repeal the previous 'Fingal County Council Bye-Laws for the Storage, Presentation and Collection of Household Waste (2006)'. The Bye-Laws set a number of enforceable requirements on waste holders with regard to storage, separation, and presentation of waste within the FCC functional area. Key requirements under these Bye-Laws of relevance to the proposed development include the following:

- Kerbside waste presented for collection shall not be presented for collection earlier than 6.00 pm on the day immediately preceding the designated waste collection day;
- All containers used for the presentation of kerbside waste and any uncollected waste shall be removed from any roadway, footway, footpath, or any other public place no later than 9:00am on the day following the designated waste collection day, unless an alternative arrangement has been approved in accordance with byelaws.
- Documentation, including receipts, is obtained, and retained for a period of no less than one year to provide proof that any waste removed from the premises has been managed in a manner that conforms to these bye-laws, to the Waste Management Act and, where such legislation is applicable to that person, to the European Union (Household Food Waste and Bio-Waste) Regulations 2015; and
- Adequate access and egress onto and from the premises by waste collection vehicles is maintained.

The full text of the Waste Bye-Laws is available from the FCC website.

2.7 Regional Waste Management Service Providers & Facilities

Various contractors offer waste collection services for the residential sector in the FCC region. Details of waste collection permits (granted, pending, and withdrawn) for the region are available from the NWCPO.

As outlined in the regional waste management plan, there is a decreasing number of landfills available in the region. Only three municipal solid waste landfills remain operational and are all operated by the private sector. There are a number of other licensed and permitted facilities in operation in the region including waste transfer stations, hazardous waste facilities and integrated waste management facilities. There are two existing thermal treatment facilities, one in Duleek, Co. Meath and a second facility in Poolbeg in Dublin.

The closest recycling centre can be found at the Estuary Recycling Centre, Swords, beside Swords Business Park. A copy of all CORs and waste permits issued by the Local Authorities are available from the NWCPO website and all waste/IE licenses issued are available from the EPA.

2.8 Policy Context

Development Plan Policy generally sets out guidelines for waste management which conform to the European Union and National Waste Management Hierarchy as follows:

- Waste Prevention
- Minimisation
- Re-use
- Waste Recycling
- Energy Recovery
- Disposal

This guidance is subject to economic and technical feasibility and environmental assessment. Council's Waste Management Strategy is firmly grounded in EU and National policy and can be summarised by the waste hierarchy of prevention, recycling, energy recovery and disposal.

3.0 DESCRIPTION OF THE PROJECT

3.1 Location, Size and Scale of the Development

The development will comprise a Large-Scale Residential Development (LRD) on a site at Holybanks, Swords, Co. Dublin of 640 no. units delivering 132 no. houses and 508 no. apartments and duplex apartments made up of 1 beds; 2 beds; 3 beds; and 4 beds. Provision of car, cycle and motorbike parking will be provided throughout the development. Vehicular/pedestrian/cyclist accesses from Glen Ellan Road and Jugback Lane. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping and boundary treatments are also included. Junction and road improvement works are proposed to the Glen Ellan Road / Balheary Road junction and the R132 Dublin Road / R125 Seatown West Roundabout."

Block	Number of Units				Total
	1-Bed	2-Bed	3-Bed	4-Bed	
Apartment Block 1	10	28	-	-	38
Apartment Block 2	32	20	-	-	52
Apartment Block 3	32	20	-	-	52
Apartment Block 4	9	18	-	-	27
Apartment Block 5	9	24	-	-	33
Apartment Block 6	9	22	-	-	31
Apartment Block 7	11	28	-	-	39
Apartment Block 8	33	23	-	-	56
Apartment Block 9	35	23	-	-	58
Apartment Block 10	28	18	-	-	46
Apartment Block 11	19	23	-	-	42
Duplexes Block A	-	4	4	-	8
Duplexes Block B	-	6	4	-	10
Duplexes Block C	-	4	4	-	8
Duplexes Block D	-	4	4	-	8
Houses	-	8	87	21	116
Townhouses	-	-	16	-	16
Total	**227**	**273**	**119**	**21**	**640**

Table 1.0 Residential Development Unit Mix

Services & Amenities	Floor Space m²
Crèche	516 m²
Retail/Commercial	79.9 m²
Total	**595.9 m²**

Table 2.0 Non-Residential Floor Areas

3.2 Typical Waste Categories

The predicted waste types that will be generated at the proposed development include the following:

- **Dry Mixed Recyclables (DMR**) – includes Newspaper / General paper Magazines, Cardboard Packaging, Drink (Aluminum) Cans, Washed Food (Steel/Tin) Cans, Washed Tetra-Pak Milk & Juice Cartons, Plastic Bottles (Mineral/Milk/Juice/Shampoo/Detergents), Rigid Plastics. (Pots/Tubs/Trays*)
- **Mixed Non-Recyclables (MNR) / All General Waste** – Nappies, soiled food, packaging, old candles, plasters, vacuum cleaner contents, broken delph, contaminated plastics.
- **Organic (food) Waste** – Bread, pasta and rice, Meat, fish, poultry bones, out of date food (no plastic packaging), Tea Bags, Coffee grounds and paper filters**.** Fruit and vegetables (cooked and uncooked). Food soiled cardboard or paper (no coated paper) Eggs and dairy products (no plastic packaging) Paper napkin and paper towels
- **Glass**

In addition to the typical waste materials that will be generated on a daily basis, there will be some additional waste types generated in small quantities that will need to be managed separately including:

- Green/garden waste - may be generated from internal plants and external landscaping carried out by the management company.
- Textiles
- Batteries
- Waste electrical and electronic equipment (WEEE)
- Chemicals (solvents, pesticides, paints, adhesives, resins, detergents, etc.)
- Furniture (and from time-to-time other bulky wastes)

Wastes should be segregated into the above waste types to ensure compliance with waste legislation and guidance set out in the Fingal County Council Bye-Laws, 2020, while maximising the re-use, recycling and recovery of waste with diversion from landfill wherever possible in line with Waste Management (Food Waste) Amendment Regulations 2015 (S.I. 191 of 2015) and the European Union (Household Food Waste and Bio Waste) Regulations 2015 (S.I. 191 of 2015), Waste Management (Food Waste) Regulations 2009 (S.I. 508/2009) and the Eastern-Midlands Regional Waste Management Plan 2015 – 2021).

3.3 European Waste Codes

Under the classification system, different types of wastes are fully defined by a code. The List of Waste (LoW) code (also referred to as European Waste Code or EWC) for typical waste materials expected to be generated during the operation of the proposed development are provided in the Table below 3.0.

3.4 Methodology

3.4.1 Residential Calculation Methodology

Waste arisings were calculated in accordance with BS 5906:2005 and included a provision of 5 litres (L) of food waste per residential unit per week. These guidelines determine the minimum capacity for waste storage space to be allocated and are as follows:

- 30 litres (L) per unit + 70L per bedroom (see Table 4.0 for further details).
- Split 50:50 between DMR and residual waste; and
- 5L per residential unit for food waste.

Number of Bedrooms	Weekly Waste Arisings per Unit (L)			
	DMR	Food Waste	MNR	Total
1 Bedroom	50	5	50	**105**
2 Bedroom	85	5	85	**175**
3 Bedroom	120	5	120	**245**

Table 4.0 Weekly Waste Arisings Methodology

3.4.2 Commercial/Community Calculation Methodology

BS 5906:2005 provides a methodology for the calculation of waste arisings from crèche area. These calculation methodologies are outlined within Table 5.0 of this Strategy. A 50:50 split between DMR, and residual waste has been assumed for the crèche area.

Land Use Class	Waste Storage Requirements	Waste Stream Ratios
Crèche	10L per m^2 NIA	50: 50 DMR: Residual
Retail	10L per m^2 Sales Floor Area (SFA)	MDR: Residual Waste 50: 50

Table 5.0 Crèche Area Waste Arising Calculations (Weekly)

Waste Material	LoW Code
Paper and Cardboard	20 01 01
Plastic	20 01 39
Metals	20 01 40
Mixed Municipal Waste	20 03 01
Glass	20 01 02
Biodegradable Kitchen Waste	20 01 08
Oils and Fats	20 01 25/26*
Biodegradable garden and park wastes	20 02 01
Textiles	20 01 11
Batteries and accumulators*	20 01 33*-34
Printer Toner / Cartridges*	20 01 27* -28
Green Waste	20 02 01
Waste electrical and electronic equipment*	20 01 35*-36
Chemicals (solvents, pesticides, paints & adhesives, detergents etc) *	20 01 13 / 19 /27 / 28 / 29* 30
Fluorescent tubes and other mercury containing waste*	20 01 21*
Bulky wastes	20 03 07

Table 3.0 LoW Code

4.0 ESTIMATED WASTE ARISING

The estimated quantum/volume of waste that will be generated from the residential units has been determined based on the predicted occupancy of the units and is presented in table 6.0 and 7.0 below.

Waste Volume (L/week)				
Block	**Mixed Dry Recyclables**	**Organic Waste**	**Mixed Municipal Waste**	**Total**
Apartment Block 1	2705	190	2705	5,600
Apartment Block 2	3475	260	3475	7,210
Apartment Block 3	3475	260	3475	7,210
Apartment Block 4	1980	135	1980	4,095
Apartment Block 5	2490	165	2490	5,145
Apartment Block 6	2242	155	2242	4,639
Apartment Block 7	2930	195	2930	6,055
Apartment Block 8	3605	280	3605	7,490
Apartment Block 9	3705	290	3705	7,700
Apartment Block 10	2930	230	2930	6,090
Apartment Block 11	2905	210	2905	6,020
Duplexes Block A	820	40	820	1,680
Duplexes Block B	510	30	510	1,050
Duplexes Block C	820	40	820	1,680
Duplexes Block D	820	40	820	1,680
Total	**35412**	**2520**	**35412**	**73,344**

Table 6.0 Residential Waste Prediction (L/per week)

Non-Residential Floor Areas	Area (Sq.m)	Area (sq.) GIA	Area (sq.) (NIA)	DMR Recycling	Food Waste	MNR Residual	Total (L)
Crèche	516.0	474.7	397.32	1986.60	50	1986.60	4023.2
Retail	79.9	73.5	61.52	307.62	100	307.62	715.24

Table 7.0 Commercial Waste Predictions (L/per week)

4.1 Waste Storage and Collection

This section provides information on how waste generated within the development will be stored and how the waste will be collected from the development. This has been prepared with due consideration of the proposed site layout as well as best practice standards, local and national waste management requirements including those of Fingal County Council. In particular, consideration has been given to the following documents:

- BS 5906:2005 Waste Management in Buildings – Code of Practice.
- EMR Waste Management Plan 2015 – 2021.

- Fingal County Council, *Presentation and Storage of Waste Byelaws* (2020).
- DoEHLG, Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2022).

4.2 Residential Waste and Recycling Management and Storage Strategy

It is required that space be provided for recycling bins to accommodate 50% of the total weekly volume. This is in line with the BS5906:2005 requirements. Residual waste (MNR) is required for 87.5% of the total weekly arising. For the purpose of the strategy Organic Waste is required for 87.5% of the total weekly arising. Bin storage requirements for communal amenity areas are included within residential waste storage areas.

Block	Number of Bins Required for a Weekly Collection		
	MNR	Organic	DMR
Apartment Block 1	3 x 1100L	1 x 240L	3 x 1100L
Apartment Block 2	4 x 1100L	2 x 240L	4 x 1100L
Apartment Block 3	4 x 1100L	2 x 240L	4 x 1100L
Apartment Block 4	2 x 1100L	1 x 240L	2 x 1100L
Apartment Block 5	3 x 1100L	1 x 240L	3 x 1100L
Apartment Block 6	2 x 1100L	1 x 240L	2 x 1100L
Apartment Block 7	3 x 1100L	1 x 240L	3 x 1100L
Apartment Block 8	3 x 1100L	2 x 240L	3 x 1100L
Apartment Block 9	4 x 1100L	2 x 240L	4 x 1100L
Apartment Block 10	3 x 1100L	1 x 240L	3 x 1100L
Apartment Block 11	3 x 1100L	1 x 240L	3 x 1100L
Duplexes Block A	1 x 1100L	1 x 240L	1 x 1100L
Duplexes Block B	1 x 1100L	1 x 240L	1 x 1100L
Duplexes Block C	1 x 1100L	1 x 240L	1 x 1100L
Duplexes Block D	1 x 1100L	1 x 240L	1 x 1100L
Houses	3 bin system	3 bin system	3 bin system
Townhouses	2 x 1100L	1 x 240L	2 x 1100L

Table 8.0 Residential Storage Requirements

Location	Number of Bins Required for a Weekly Collection		
	MNR	Organic	DMR
Crèche	2 x 1100L	1 x 240L	2 x 1100L
Retail	1 x 1100L	1 x 240L	1 x 1100L

Table 9.0 Commercial Requirements

4.3 Waste Storage Residential Units

Provision is made for the segregation and storage of domestic waste within each unit. Each unit is provided with bins in the kitchen area to enable the separation of waste into different waste streams – glass, food, DMR (Dry Mixed Recycling) and general waste.

4.3.1 All Apartments

Residential Developments will ensure access for all (including people with disabilities) in a brightly lit, safe & well sighted area, spacious enough for easy manoeuvrability, good ventilation and ready access if required for the control of potential vermin.

Sufficient access and egress must be provided to enable receptables to be moved easily from the storage area to an appropriate collection point within the curtilage of the development in accordance with Fingal County Council (Segregation, Storage & Presentation of Household and Commercial Waste) Byelaws, 2020.

Each apartment shall include individual waste storage bins which shall be sized to allow their easy manual handling to be brought to the central waste storage area. It is anticipated that DMR, MNR and organic waste will be collected on a weekly basis, glass waste should be brought to the nearest bottle bank or recycling centre. Space has been allocated in the shared WSAs to accommodate glass if required for the residents of the apartments.

4.3.2 Apartments & Duplexes

Residents will be expected to take all waste arisings from their units to the appropriate residential waste storage areas. Residents will be required to segregate their waste into the following waste categories within their own apartment and duplex units:

- DMR.
- MNR.
- Organic waste; and
- Glass.

The proposed Waste Storage Areas for the Apartments and duplexes are located as per Figure 1.0 – 13.0 below. It is recommended that the WSAs will have secure access with either key or fob to ensure only residents may place waste in the WSA. On collection day, the bins will be brought from the bin store to the waste collection point by the waste management company personnel. Once the bins are emptied the bins will be brought back to the waste storage area.

Figure 1.0 Waste Storage Areas – Apartment Blocks 1, 2 & 3

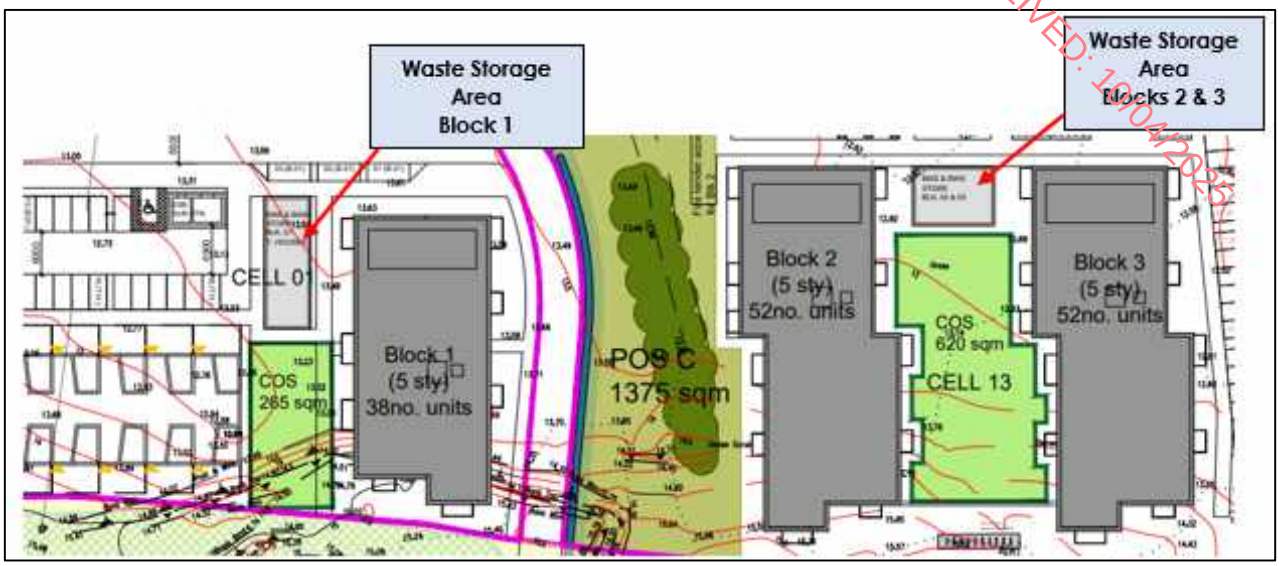


Figure 2.0 Waste Storage Areas –Apartment Blocks 4 & 5

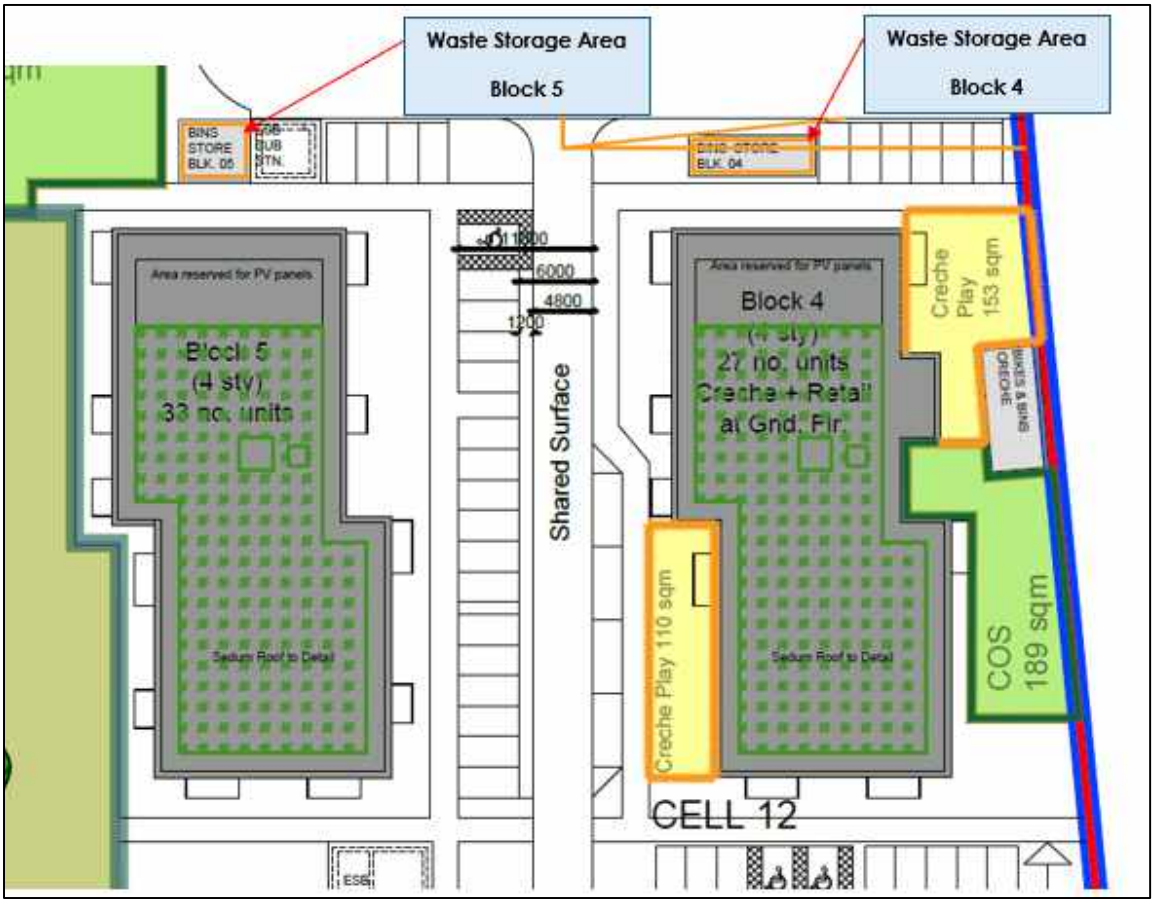


Figure 3.0 Waste Storage Areas –Apartment Blocks 6 & 7

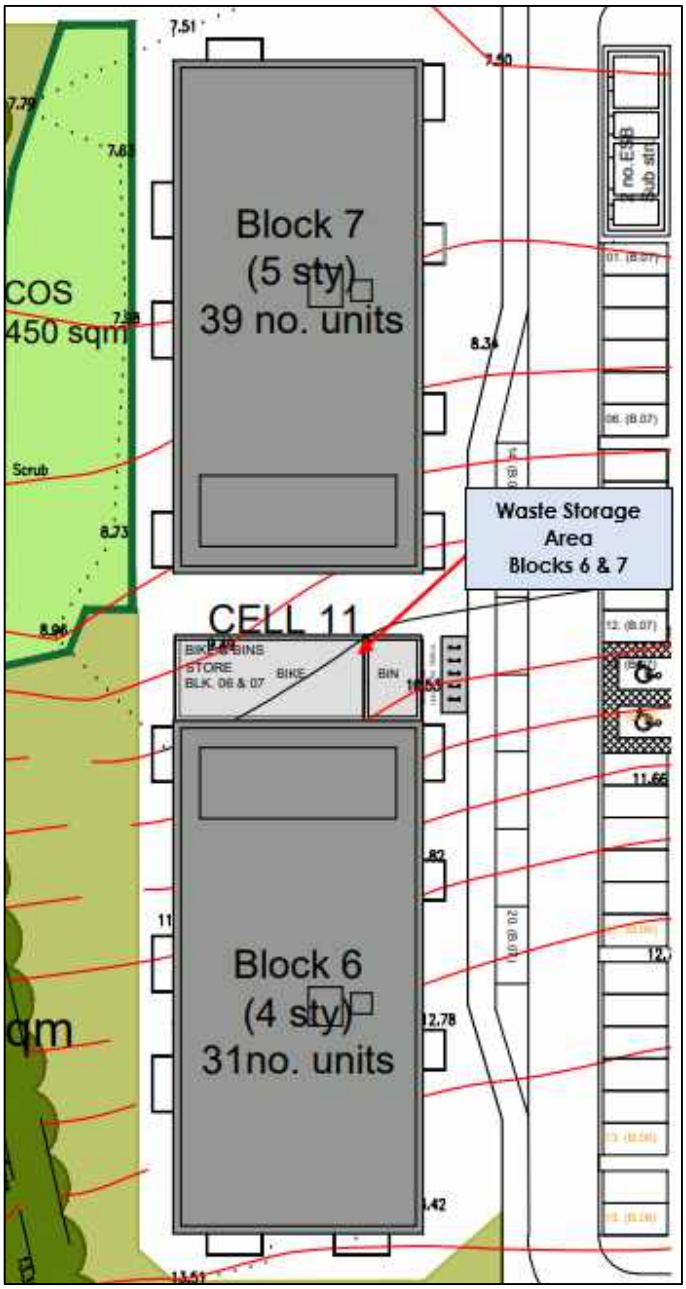


Figure 4.0 Waste Storage Areas –Apartment Block 8

Figure 5.0 Waste Storage Areas –Apartment Blocks 9 & 10

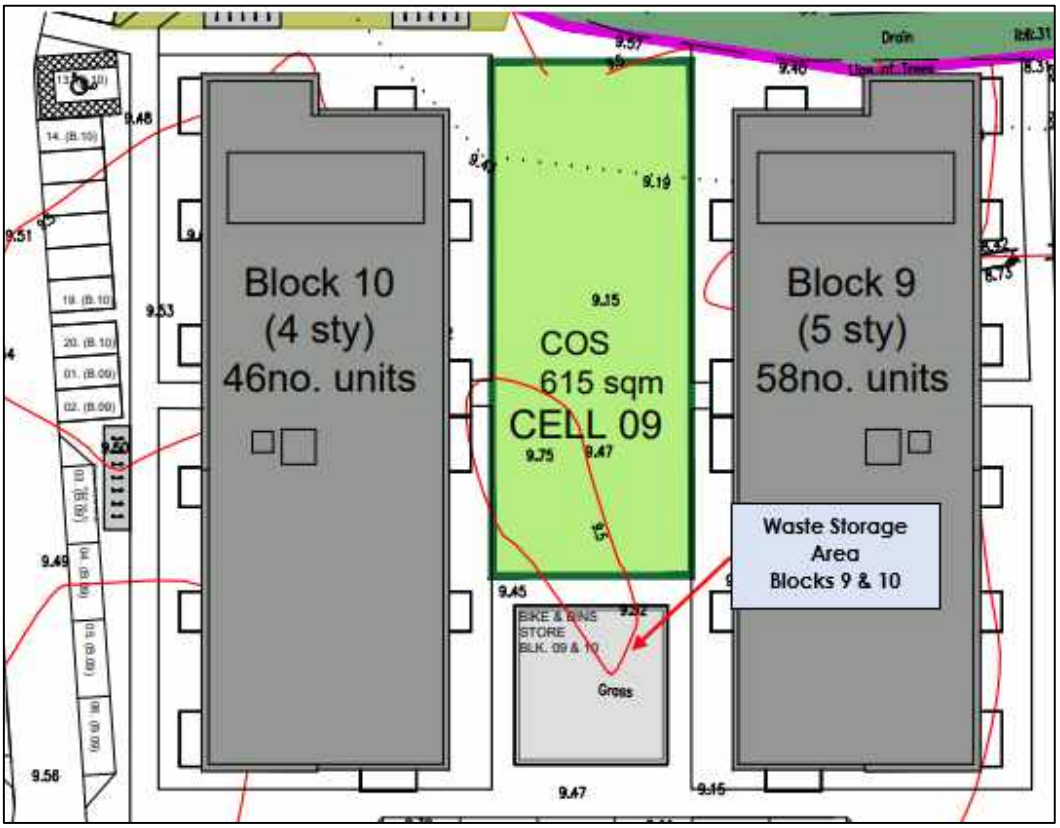


Figure 6.0 Waste Storage Areas –Apartment Block 11

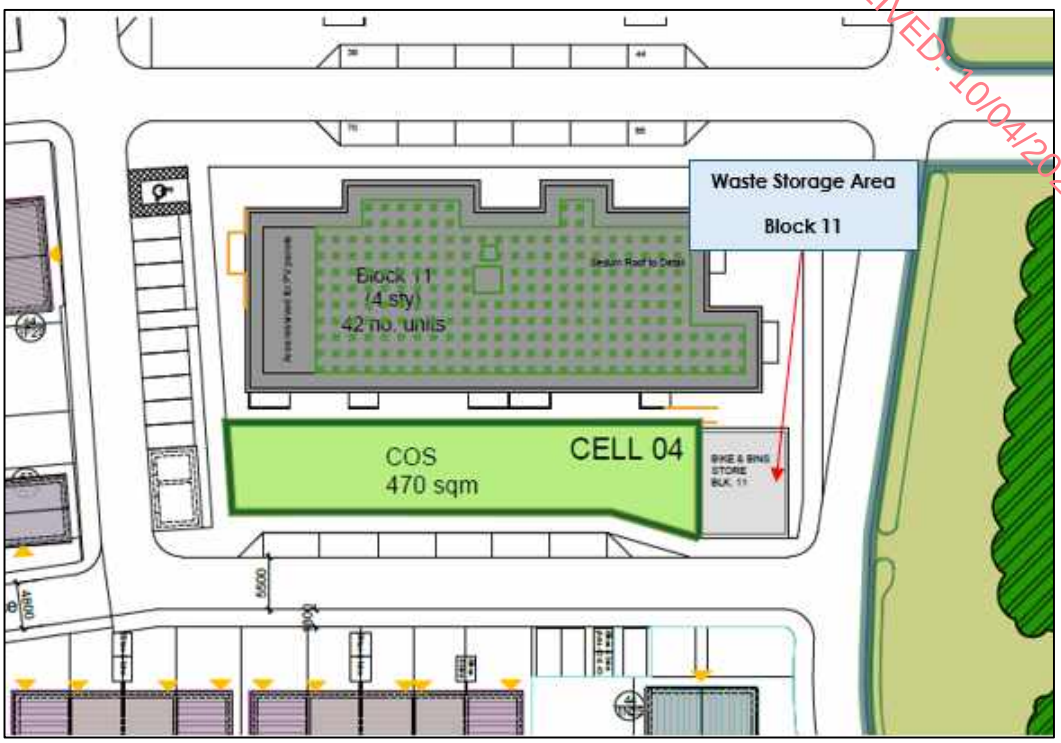


Figure 7.0 Waste Storage Areas –Duplex Blocks A & B

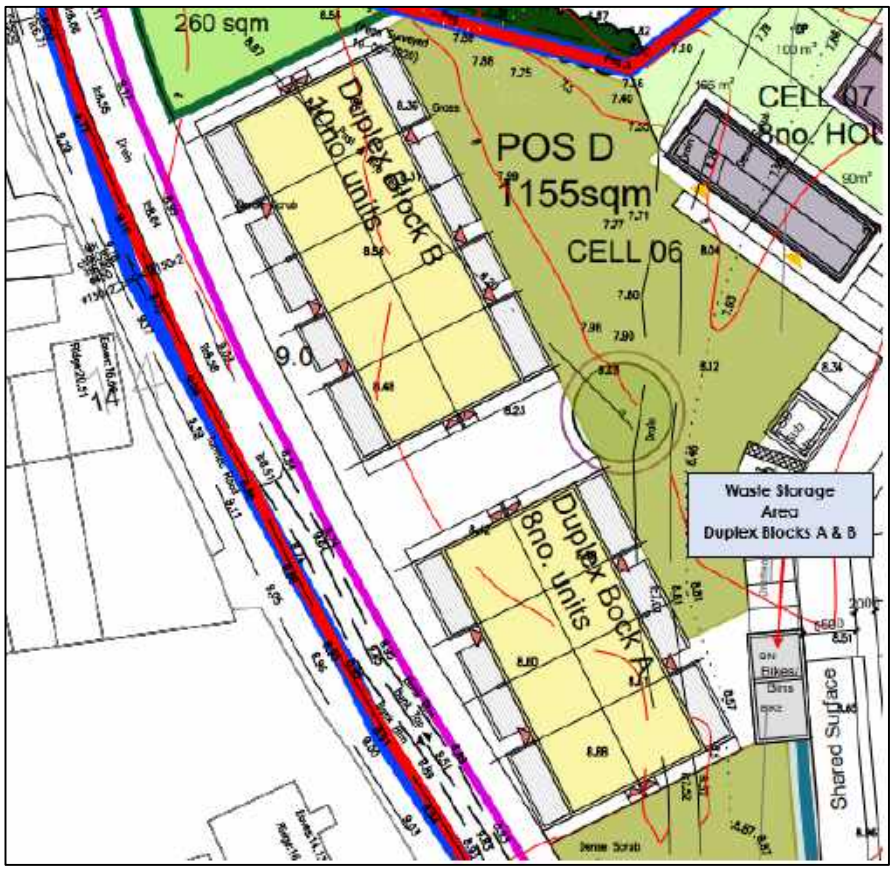
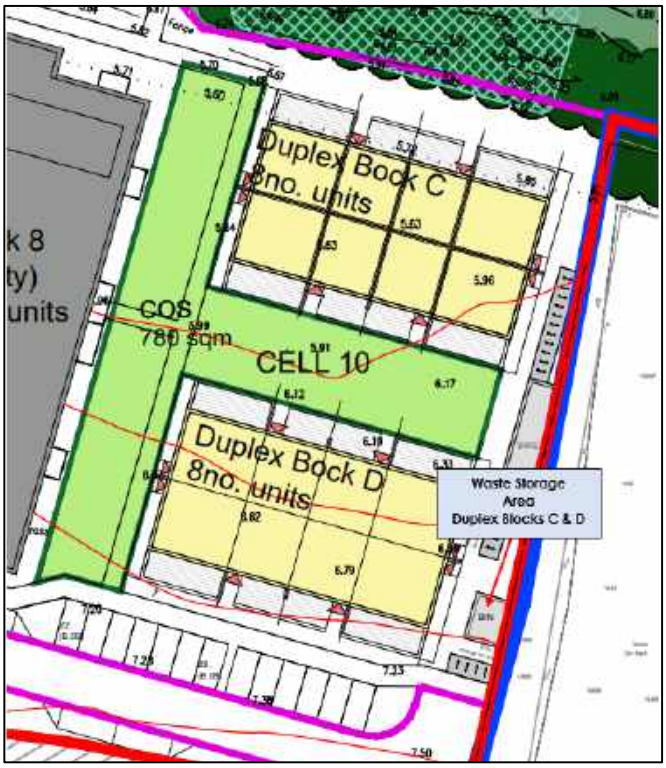


Figure 8.0 Waste Storage Areas –Duplex Blocks C & D



4.3.3 Houses

Residents will be required to segregate their waste into the following waste categories within their own house:

- DMR.
- MNR; and
- Organic waste.

Residential houses will be serviced by a three-bin system per house. On the day of collection, residents will bring their bins to the front of the house.

Figure 9.0 Waste Storage Areas – Single and Double.

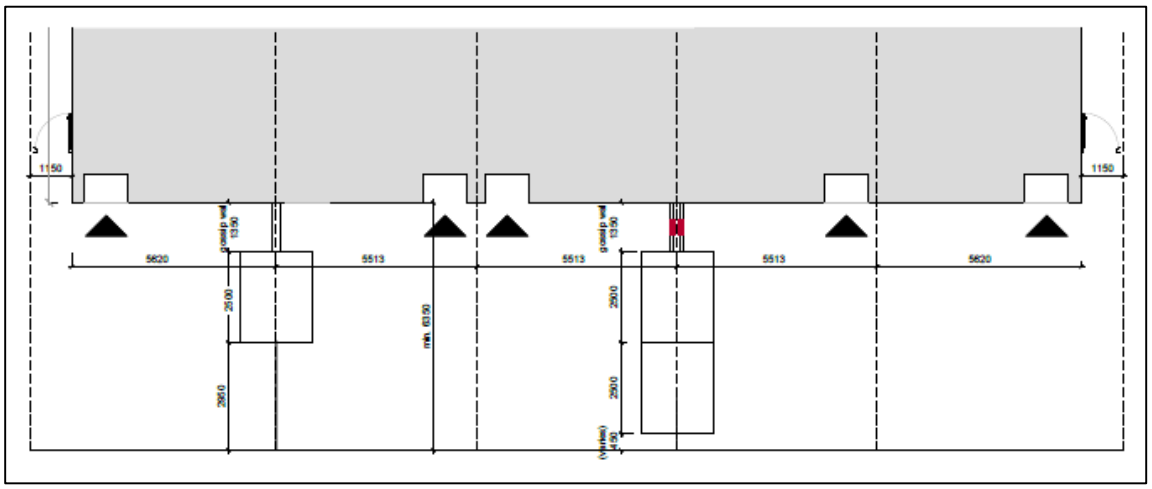


Figure 10.0 Typical Bin store detail – Double.

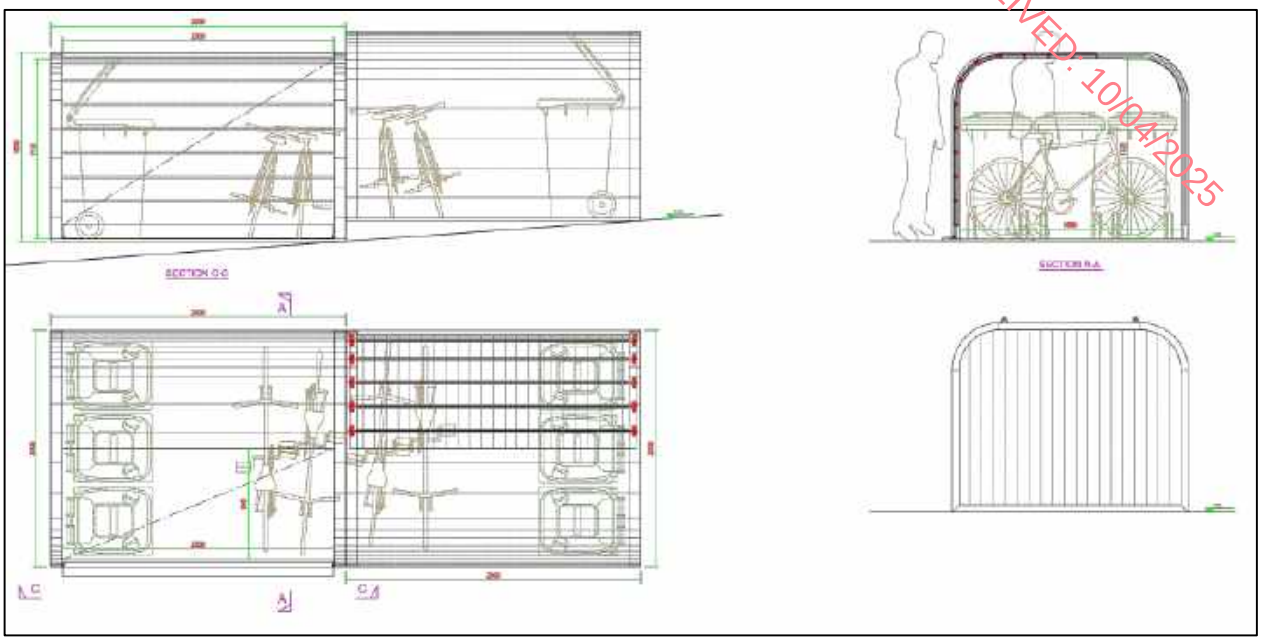
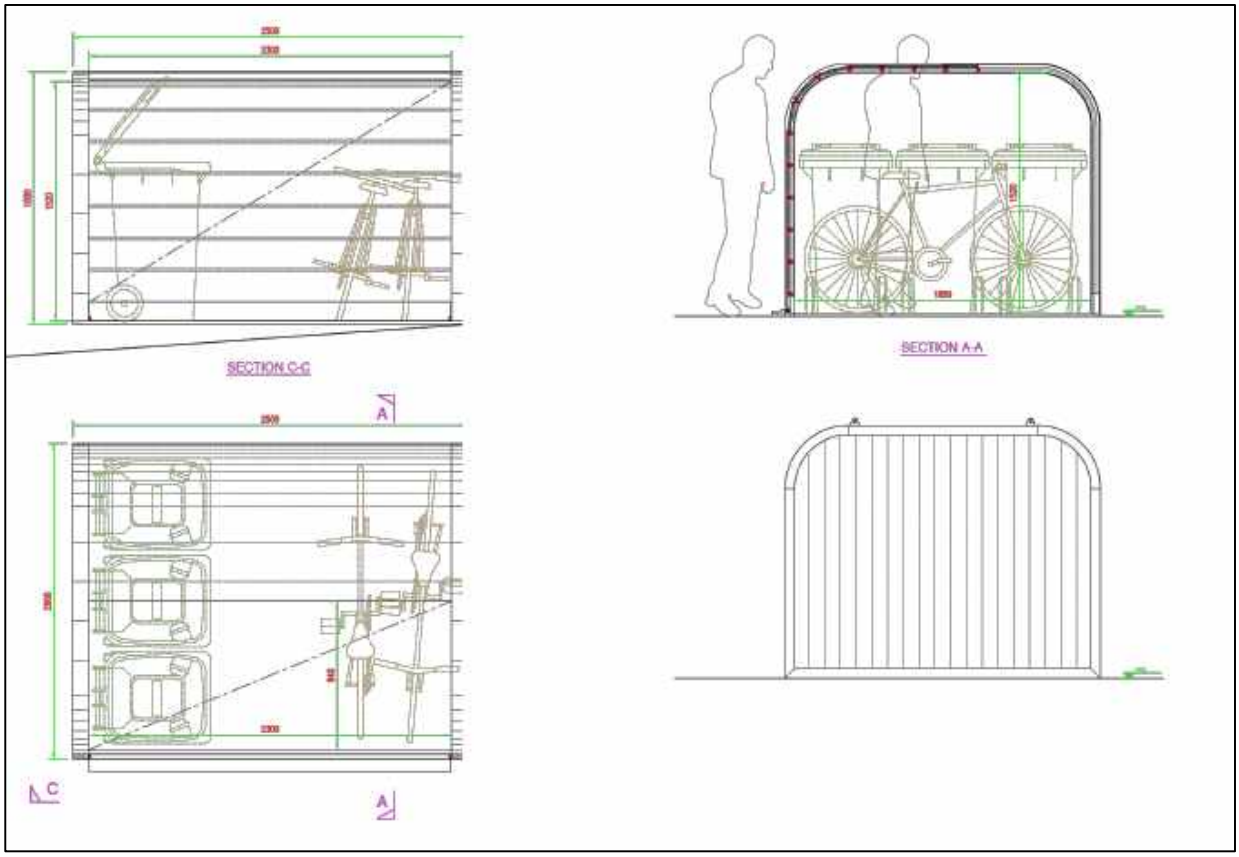


Figure 11.0 Typical Bin store detail – Single.



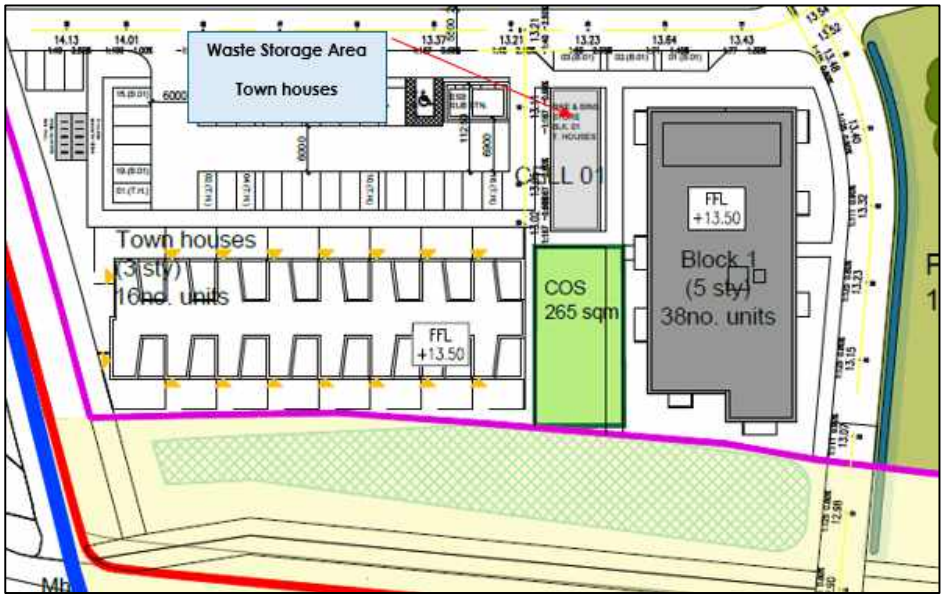
4.3.4 Townhouses

Residents will be required to segregate their waste into the following waste categories within their own townhouses:

- DMR.
- MNR; and
- Organic waste.

Residential townhouses will be serviced by a standalone building which will house the bin storage area for the townhouses. On collection day, the bins will be brought from the bin store to the waste collection point by the waste management company personnel. Once the bins are emptied the bins will be brought back to the waste storage area.

Figure 12.0 Waste Storage Areas –Townhouses



4.3.5 Crèche – Childcare Facility

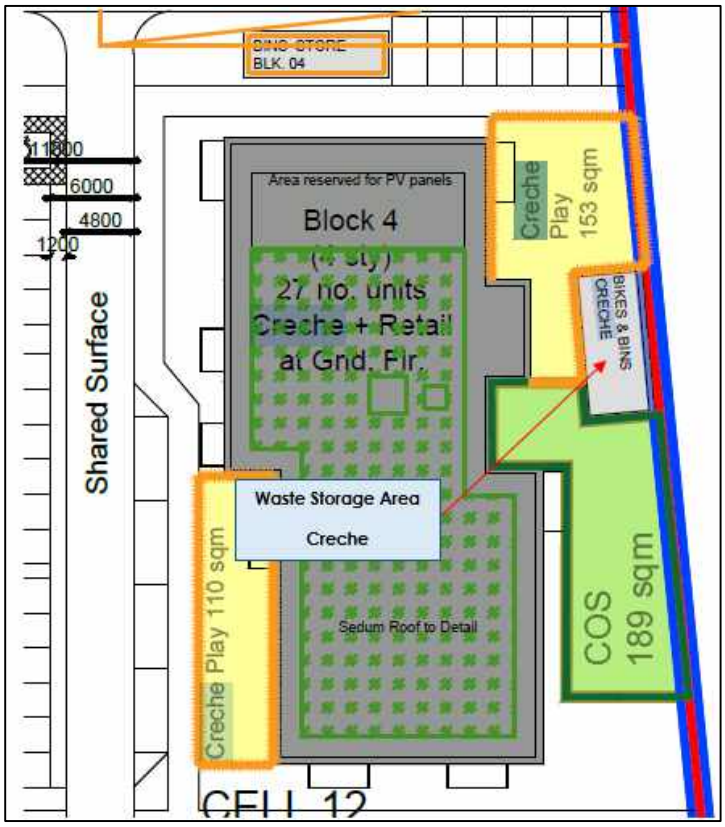
Staff will be required to segregate their waste into the following waste categories within their own unit:

- DMR.
- MNR; and
- Organic waste.

As required, the staff will need to bring segregated DMR, MNR and organic waste to the dedicated WSA at Block 4. See figure 13 for the location of the bin store. Each bin/container in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin.

Access to the WSA will be restricted to authorised childcare facility staff, facilities management, and waste contractors by means of a key or electronic fob access.

Figure 13.0 Waste Storage Area –Crèche



4.3.6 Retail Units

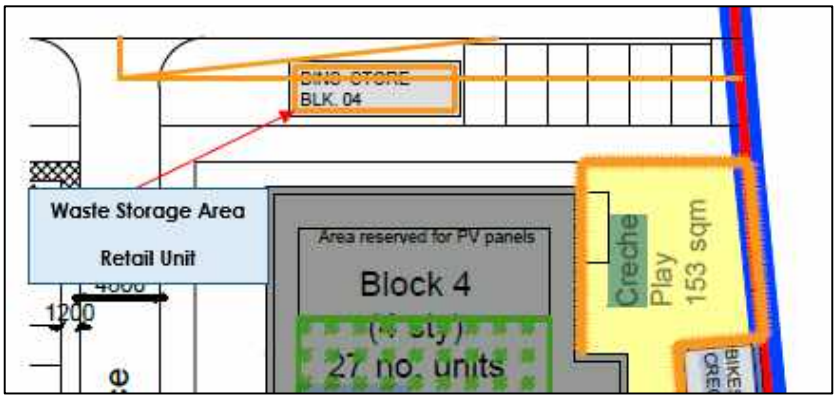
Staff will be required to segregate their waste into the following waste categories within their own unit:

- DMR.
- MNR; and
- Organic waste.

As required, the staff will need to bring segregated DMR, MNR and organic waste to the dedicated WSA at Block 4.

The Bin storage area for the retail unit will be located to the north of Block 4. Each bin/container in the WSA will be clearly labelled and colour coded to avoid cross contamination of the different waste streams. Signage will be posted above or on the bins to show exactly which waste types can be placed in each bin. Access to the WSA will be restricted to authorised staff, facilities management, and waste contractors by means of a key or electronic fob access.

Figure 14.0 Waste Storage Area –Retail Unit



4.4 Waste Collection Contractors

There are numerous private contractors that provide waste collection services in the Fingal area who hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permitted/licensed facilities only.

All waste requiring collection by the appointed waste contractor will be collected from the WSAs by nominated waste contractors or facilities management depending on the agreement and will be brought to the temporary waste collection areas. The empty bins will be promptly returned to the appropriate WSAs.

All waste receptacles presented for collection will be clearly identified as required by waste legislation and the requirements of the Fingal Waste County Council Bye-Laws. Also, waste will be presented for collection in a manner that will not endanger health, create a risk to traffic, harm the environment or create a nuisance through odours or litter.

4.5 Additional Waste Materials

There is likely to be a small component of the overall waste arisings from the Proposed Development that will comprise other waste streams, such as WEEE, printer and toner cartridges, and fluorescent light tubes. Building maintenance will also give rise to materials such as paints and will be the responsibility of the management company to dispose of this waste.

4.6 Waste Storage Area Design

Waste Storage Areas will bedesigned in accordance with BS 5906:2005 and 'Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities (2022).

- All containers for waste, including recyclable material, will be easily accessible to both the occupier and waste collector.
- Waste store area will be designed and located in such a way as to limit potential noise disturbance to residents.
- Waste storage sites will include areas for instructional signage detailing correct use of the facilities.

In addition to the above requirements, past experience and best practice for the storage of waste materials will include the following provisions:

- Waste storage facilities will not block any utility service points.
- Waste storage facilities will not obstruct sight lines for pedestrians, drivers and cyclists, if doors open outwards, they will not open onto a road or highway.
- Colour coding will be used for bins of different streams.
- The facilities management company will be required to maintain the bins and their WSAs in good condition. All residents should be made aware of the waste segregation requirements and waste storage arrangements.

5.0 WASTE COLLECTION REQUIREMENTS

In line with BS 5906:2005 and Fingal County Council Bye Laws 2020 guidance, the following collection requirements have been designed into the Proposed Development to comply with all mandatory waste storage requirements:

5.1 BS 5906 2005

All paths used to transport bins from the storage area to the collection point will have a minimum width of 2m, be free from kerbs or steps, have a solid foundation and be finished with a smooth, continuous finish. Based on the clearance height and tonnage specified by the dimensions of a standard waste collection vehicle have been used to undertake the swept path analysis.

Dimensions	
Width	2.53 metres
Gross vehicle weight	26 tonnes
Length	11.2 metres
Clearance Height	4.75m (Any part of a building through which a waste collection vehicle passes must have a minimum clear height of 4.75 m, to allow for overhead fixtures and fittings)
Turning Circle (diameter)	9.5 metres

Table 6.0 Collection Vehicle Dimensions: Waste/Recycling Collection Vehicle

6.0 CONCLUSIONS

The Proposed Development will be achieved with high standards of waste management performance. As such, due consideration has been given to waste which will be generated by the Proposed Development during its operation. Waste management within the Proposed Development has the following aims:

- To contribute towards achieving current and long-term government, Fingal County Council and EMR targets for waste minimisation, recycling, and reuse.
- To ensure that all legal requirements for the handling and management of waste during the operation of the Proposed Development are complied with; and
- To provide tenants with convenient, clean, and efficient waste management systems that enhance the operation of the buildings and promote high levels of recycling.

In summary, this OWRMP presents a waste strategy that complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

Appendix 13.1

Uisce Éireann Confirmation of Feasibility and Statement of Design Acceptance

No Change

Appendix 13.2

ESB Network Map

No Change

Appendix 13.3

Gas Networks Ireland (GNI) Map

No Change

Appendix 13.4

Eir and Virgin Media Maps

No Change

Appendix 14.1

SMR/RMP Sites Within the Study Area

No Change

Appendix 14.2

Architectural Heritage Sites Within the Study Area

No Change