Barnhill SHD

Natura Impact Statement

Alanna Homes

Project number: 60627785

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Quality information

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1. Introduction

1.1 Background

AECOM was commissioned by Alanna Homes to produce this Natura Impact Statement (NIS) in relation to the proposed Strategic Housing Development (SHD) at Barnhill (the 'Site') (hereafter referred to as the 'Proposed Development') being progressed at Barnhill, Clonsilla, Co. Dublin.

This document considers the potential effects of the Proposed Development on European Sites, which include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). It serves to assess the effects of the Proposed Development, in combination with any other plans or projects, on the integrity of European Sites and includes both the initial screening stage and progresses to full Appropriate Assessment.

1.2 Overview of the Proposed Development

The Proposed Development constitutes the majority of the area encompassed by the Barnhill Local Area Plan (LAP). This area is located directly south of the Dunboyne to Clonsilla Rail line and Hansfield Train Station, west of the Royal Canal and the Dublin to Maynooth Railway Line, and east of the existing R149 Leixlip to Clonee Regional Road. The Proposed Development will consist of approximately 1,243 units (with a mix of unit sizes and types), commercial units, a creche and land set aside for a future primary school. The Proposed Development incorporates significant amounts of the existing hedgerow and tree resource, and includes a public park area incorporating the Barnhill Stream and a proposed pond/wetland area. The latter is part of the overall Sustainable Drainage System (SuDS) strategy, which incorporates a number of other measures including retention (with modification as necessary) of significant parts of the existing ditch and hedgerow network. The location of the Proposed Development is shown on Figure 1.

1.3 Legislative context

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is more commonly known as 'the Habitats Directive', requires Member States of the European Union (EU) to take measures to maintain or restore, at favourable conservation status, natural habitats and wild species of fauna and flora of Community interest. The provisions of the Habitats Directive require that Member States designate Special Areas of Conservation for habitats listed on Annex I and for species listed on Annex II. Similarly, Directive 2009/147/EC on the conservation of wild birds (more commonly known as 'the Birds Directive') provides a framework for the conservation and management of wild birds. It also requires Member States to identify and classify SPAs for rare or vulnerable species listed on Annex I of the Directive, as well as for all regularly occurring migratory species. SACs and SPAs are collectively known as European Sites or Natura 2000 sites.

Under article 6(3) of the Habitats Directive, any plan or project which is not directly connected with or necessary to the management of a European site, but would have a Likely Significant Effect on such a site, either individually or in combination with other plans or projects, must be subject to an Appropriate Assessment of its implications for the SAC / SPA and its nature conservation objectives.

In the Republic of Ireland, the requirements of Article 6(3) are transposed into national law through Part XAB of the Planning and Development Acts 2000-2020 (the 'PDA') for planning matters, and by the European Communities (Birds and Natural Habitats) Regulations 2011 in relation to other relevant approvals / consents. The legislative provisions for AA Screening for planning applications are set out in Section 177U of the PDA.

The Competent Authority responsible for carrying out the Appropriate Assessment is the relevant planning authority for each plan or project.

1.4 Purpose of this Report

For the Proposed Development, the Competent Authority responsible for assessing the potential effects on European Sites is Fingal County Council (FCC). Whilst Appropriate Assessment (can only be carried out by a Competent Authority, the information needed to complete this exercise is typically provided by the applicant (Alanna Homes).

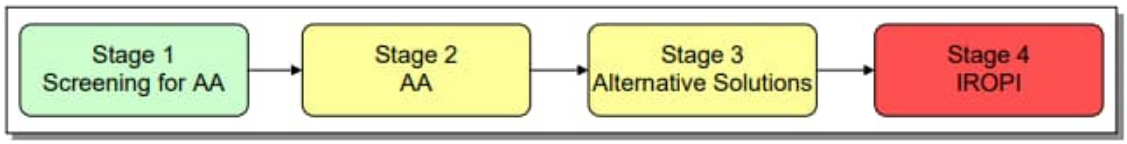
This Natura Impact Statement (NIS) therefore represents the opinion of AECOM, appointed by Alanna Homes, as to whether it can be ascertained that the Proposed Development, alone or in combination with other plans or projects, will not adversely affect the integrity of European Sites, in view of their conservation objectives and considering any design modifications or mitigation (but not compensatory measures, which are only considered at a later stage – see below). It is designed to enable the Competent Authority to make a decision as to whether the Proposed Development can be consented, without the requirement to consider alternative solutions and Imperative Reasons of Overriding Public Interest (IROPI).

2. Approach to Appropriate Assessment

2.1 Overview

Insert 1 below outlines the stages of AA according to current Department of the Environment, Heritage and Local Government guidance (DoEHLG, 2010). The process required by Articles 6(3) and 6(4) of the Habitats Directive is stepwise and must be followed in sequence. The stages are essentially iterative, being revisited as necessary in response to more detailed information, recommendations and any relevant changes to the plan until no significant adverse effects remain.

Insert 1. The four-stage approach to AA (source: DoEHLG, 2010)



2.2 Stages of Appropriate Assessment

2.2.1 Stage 1 – Screening for Appropriate Assessment

The first step in the sequence of tests is to establish whether an Appropriate Assessment is required. This is often referred to as Appropriate Assessment (or AA) screening. The purpose of AA screening is to determine, in view of the best available scientific knowledge, whether a plan or project, either alone or in combination with other plans or projects, could have Likely Significant Effects (LSE) on European Sites, in view of their conservation objectives.

For this purpose and as a result of case law 'likely' means 'possible'. If the competent authority determines that there are no LSEs (including 'in combination' effects from other plans or projects), then no further assessment is necessary and the plan or project can, subject to any other issues, be taken forward. If, however, the Competent Authority determines that there are LSE, or if there is reasonable scientific doubt, then the next step in the process must be initiated and a detailed Appropriate Assessment undertaken.

In 2017 the Court of Justice of the European Union (CJEU) ruled in *People Over Wind and Sweetman v Coillte Teoranta (C-323/17)* that measures intended to avoid or reduce the harmful effects of a proposed project on a European site, but which are not an integral part of the project, may no longer be considered by Competent Authorities when testing for LSE at the Screening stage of HRA. On this basis, mitigation may only be taken into account during the Appropriate Assessment stage.

2.2.2 Stage 2 – Appropriate Assessment

Where it is determined that a conclusion of 'no Likely Significant Effect' cannot be drawn, the analysis proceeds to the next stage of Appropriate Assessment. Case law has clarified that 'appropriate assessment' is not a technical term. In other words, there are no particular technical analyses, or level of technical analysis, that are classified by law as belonging to Appropriate Assessment rather than determination of Likely Significant Effects. The purpose of the appropriate assessment is to carry out sufficient scientific investigation to ascertain whether the plan or project, alone or in combination with other plans or projects, will not adversely affect the integrity of European Sites, in view of their conservation objectives and considering any design modifications or mitigation (but not compensatory

measures, which can only be considered in exceptional circumstances when requirements for Stages 3 and 4 have been met).

When carrying out the Appropriate Assessment, cognisance was given to the ruling of the CJEU in November 2018 in the case of *Holohan and Others v An Bord Pleanála (C-461/17)*. The conclusions of the Court in that case now require that during the course of AA, consideration must be given to:

- effects on the qualifying habitats and/or species of a SAC, outside the boundary of the designated site, if these are relevant to the site meetings its conservation objectives; and,
- effects on non-qualifying habitats and/or species on which the qualifying habitats and/or species depend and which could result in effects on the qualifying features.

2.2.3 Stages 3 and 4 – alternative solutions and IROPI

Where it is not possible to mitigate (i.e. avoid or reduce) effects on European Sites to such an extent they are rendered insignificant, a Competent Authority can only permit the project if it deems there to be: a) no viable alternatives to delivering the objectives of the project that would have less effect on European Sites; and, b) Imperative Reasons of Overriding Public Interest (IROPI) why the project should proceed despite the harm caused to European Sites. If the Competent Authority considers that both these tests can be met, then appropriate compensation must be agreed to ensure that there is no net harm to the Natura 2000 network of European Sites and the relevant Minister must be informed of the decision to grant consent. The process required by Articles 6(3) and 6(4) of the Habitats Directive is stepwise and must be followed in sequence.

2.3 Sources of guidance

This NIS has been prepared in accordance with the European Commission (EC) guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001) and the Department of the Environment, Heritage and Local Government (DoEHLG) guidance on the *Appropriate Assessment of Plans and Projects in Ireland* (DoEHLG, 2010).

In addition to the references above, the following relevant guidance was considered during the preparation of this report:

- *Appropriate Assessment Screening for Development Management* (OPR, 2021);
- *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (EC, 2018); and,
- *Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular Letter NPWS 1/10 & PSSP 2/10* (NPWS, 2010).

3. Relevant European Sites

3.1 Identification of relevant European Sites

When seeking to identify relevant European Sites, consideration has been given primarily to identified impact pathways and the source-pathway-receptor approach, rather than adopting a purely 'zones'-based approach. The source-pathway-receptor approach is a standard tool in environmental assessment (OPR, 2021). In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no likelihood for an effect to occur. Furthermore, even where an impact is predicted to occur, it may not result in significant effects (i.e. those which undermine the conservation objectives of a European site). Briefly defined, pathways are routes by which a change in activity can lead to a significant effect upon an internationally designated site.

Department of the Environment, Heritage and Local Government (DoEHLG) (2010) guidance states that European Sites with the potential to be affected by a plan or project should be identified taking into consideration the potential for direct, indirect and/or cumulative (in-combination) effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- all European Sites within or immediately adjacent to the plan or project area;
- all European Sites within the likely 'zone of impact' of the plan or project; and,
- adopting the Precautionary Principle, all European Sites for which there is doubt as to whether or not such sites might be significantly affected.

The likely zone of impact (also referred to as the likely 'zone of influence') of a plan or project is the geographic extent over which significant ecological effects are likely to occur. The DoEHLG guidance document prescribes a 15 km distance threshold for European Sites from the boundary of a plan area. In the case of projects, the guidance acknowledges that the zone of influence must be devised on a case by case basis with reference to the following criteria: the nature, size / scale and location of the project, sensitivity of ecological features under consideration and cumulative effects.

In the first instance, therefore, a search was made for European Sites within 15 km of the Proposed Development. In consideration of possible connectivity beyond 15 km, the European Sites at Dublin Bay were also included because they are downstream of the Proposed Development and there is consequently a hydrological pathway for pollutants from the Proposed Development to reach them. An overview of the European Sites identified by this means is given in Table 1, which gives approximate distances from the Proposed Development to the European site, and the Qualifying Interests (QI) of SACs and Special Conservation Interests (SCI) of SPAs.

Table 1. European Sites within 15 km of the Proposed Development

Site name [site code]	Approximate distance from the Proposed Development	Summary of QI / SCI
Rye Water Valley / Carton SAC [001398]	3 km south-west	• Petrifying springs with tufa formation (Cratoneurion) [7220] • Narrow-mouthed Whorl Snail *Vertigo angustior* [1014] • Desmoulin's Whorl Snail *Vertigo moulinsiana* [1016] • Kingfisher
Glenasmole Valley SAC [001209]	Just under 15 km south-east	• Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (important orchid sites) [6210] * • Molinia *Molinion caeruleae* meadows on calcareous, peaty or clayey-silt-laden soils [6410] • Petrifying springs with tufa formation (Cratoneurion) [7220] *
South Dublin Bay and River Tolka Estuary SPA [004024]	Just under 15 km east	• Light-bellied brent goose *Branta bernicla hrota* [A046] • Oystercatcher *Haematopus ostralegus* [A130] • Ringed plover *Charadrius hiaticula* [A137] • Grey plover *Pluvialis squatarola* [A141] • Knot *Calidris canutus* [A143] • Sanderling *Calidris alba* [A149] • Dunlin *Calidris alpina* [A149] • Bar-tailed godwit *Limosa lapponica* [A157]

Site name [site code]	Approximate distance from the Proposed Development	Summary of QI / SCI
		• Redshank *Tringa totanus* [A162] • Black-headed gull *Chroicocephalus ridibundus* [A179] • Roseate tern *Sterna dougalii*[A192] • Arctic tern *Sterna paradisea* [A194] • Wetland and waterbirds [A999]
South Dublin Bay SAC [000210]	16 km east	• Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Embryonic shifting dunes [2110]
North Bull Island SPA	17 km east	• Light-bellied brent goose [A046] • Shelduck *Tadorna tadorna* [A048] • Teal *Anas crecca* [A052] • Pintail *Anas acuta* [A054] • Shoveler *Anas clypeata* [A056] • Oystercatcher [A140] • Golden plover *Pluvialis apricaria* [A140] • Grey plover [A141] • Knot [A143] • Sanderling [A144] • Dunlin [A149] • Black-tailed godwit [A156] • Bar-tailed godwit [A157] • Curlew [A160] • Redshank [A162] • Turnstone [A169] • Black-headed gull [A179] • Wetland and waterbirds [A999]

* Indicates a priority habitat.

4. Test for Likely Significant Effects

Having identified potentially relevant European Sites, consideration was given to potential impact sources at all stages of the Proposed Development and pathways to European Sites. The potential impacts and possibility of Likely Significant Effects on QI or SCI were determined, taking account of the conservation objectives of the European Sites. This process is tabulated in Table 2.

Note that the Proposed Development is expected to continue indefinitely with no decommissioning phase, therefore only the construction and operational phases are considered.

Table 2. Potential impact sources and pathways for Likely Significant Effects on European Sites

Potential impact source	Pathway to European site(s)	Potential for Likely Significant Effect(s) on receptors*	European Sites within potential zone of influence
Construction phase			
Disturbance or displacement of SCI / QI species as a result of increased noise, artificial lighting and/or the presence of personnel, plant and machinery.	The nearest European site for which an animal species is a Qualifying Interest is the Rye Water Valley / Carton SAC (3 km east-south-east), designated for two species of whorl snail. SPA designated for wintering waterbirds are all located well beyond the distance at which construction-related disturbance would be expected (15 km). However, it is possible that species listed as SCI could use the habitats within and immediately surrounding the Proposed Development.	Given the intervening distance (3 km) to Rye Water Valley / Carton SAC, the lack of suitable habitat for the whorl snail species outside the SAC in the ZoI of the Proposed Development , and that whorl snails are unlikely to be vulnerable to disturbance except at very close proximity, there is no potential for disturbance effects on either species of whorl snail. There is no pathway for disturbance effects on birds occurring within the boundary of European Sites due to the intervening distances. However, should SCI wintering waterbird species occur in proximity to the Proposed Development on functional land outside the SPA, there is then potential for disturbance to be caused. Cutts *et al* (2013), in the Waterbird Disturbance Mitigation Toolkit, state that even 'high level' disturbance sources (including, for example, very noisy construction activities), are only likely to result in 'low level' disturbance at distances of more than 500 m. Therefore potentially significant effects are not considered possible on SCI species beyond 500 m. Of the SCI wintering waterbird species, the only ones (according to habitat preference information in Forrester *et al* 2007) likely to utilise inland fields beyond coastal areas for foraging and roosting are brent goose, oystercatcher and redshank. Curlew *Numenius arquata* is part of the general SCI wetland and waterbird assemblage, and this species also utilises inland fields. NBDC data indicate that curlew and oystercatcher occur as a breeding species in the same 10 km square as the Proposed Development, and in theory such birds could also use fields in winter within and near the Proposed Development. However, regular use of these fields by individuals of these species associated with the SPA is improbable because of the significant distance (approximately 15 km to the nearest tip of the closest SPA at Dublin Bay, with almost all of the SPA areas further away) between the Proposed Development and the SPA (to which associated birds would need to travel back and forth to be considered part of the SPA population). Moreover, the presence of extensive other areas of similar open grassland or arable fields (both of which can be used in winter by these species) adjacent to the Proposed Development, in the surrounding area andcloser to the SPA, the majority of which is marked as retained Open Space or High Amenity space in the Fingal Development Plan, reduces the possibility of any effect to an insignificant level. Therefore there is **no Likely Significant Effect**.	None
Direct loss of or damage to QI habitats or supporting habitat(s)	The nearest European site is situated more than 3 km from the Proposed Development.	The Proposed Development is not within or near any European site, therefore there is no potential for direct loss of or damage to QI habitats or supporting habitats. Therefore there is **no Likely Significant Effect**.	None.
Waterborne pollution during construction of QI habitats or habitats supporting QI / SCI.	An unnamed stream runs through the Proposed Development, and the Royal Canal (into which the stream discharges) is located on the south-east boundary of the Proposed Development. The nearest hydrologically-connected	Potential waterborne pollutants during construction (e.g. sediment, fuel, oil, chemicals or concrete mix) may reach the Barnhill Stream within the Proposed Development site, and thereby the River Liffey and Dublin Bay approximately 15 km downstream. Waterborne pollution from construction cannot reach upstream European Sites. For downstream European Sites at Dublin bay, a major effect is unlikely even if a construction pollution event occurred, as a result of a) the limited pollution potential from construction of this type of development, and the relatively short duration (rather than on-going as during operation) of any construction pollution event, b) the temporary duration of construction near the Barnhill Stream, c) the absence of development within 10 m of the Barnhill Stream and mostly much further, owing to the containment of much of the stream within a proposed park, d) the large dilution effect of the River Liffey and its tributaries over the 15 km, and e) the still larger dilution effect of the sea itself at Dublin Bay in an estuarine environment subject to major tidal flushing.	None

	European site is 3 km upstream of the Proposed Development, and hydrological connectivity to downstream coastal European Sites also exists.	Therefore there is no **Likely Significant Effect**.	
Airborne pollution of qualifying or supporting habitats or QI species.	The nearest European site is situated 3 km from the Proposed Development.	Dust and/or other emissions generated during the construction phase are likely to be minimal, even without mitigation, and would be widely dispersed before reaching any European site. For example, modelling of airborne pollution effects on ecological features for roads under the Design Manual for Roads and Bridge (Highways England, 2019) is required to a distance of 200 m from source (where traffic volumes exceed 1000 vehicles per day or 200 heavy duty vehicles per day), whereas the nearest European site is 3 km removed. Therefore there is **no Likely Significant Effect**.	None.
Spread of invasive non-native species (INNS).	Invasive non-native species (INNS) could be spread to European Sites via associated water features or animal/human vectors.	No invasive non-native plant species, either terrestrial or freshwater, were recorded in or near the Proposed Development site, therefore no effect from these is possible on European Sites. Whilst invasive non-native animals (American mink *Mustela vison,* brown rat *Rattus norvegicus,* grey squirrel *Sciurus caroliensis* and sika deer *Cervus nippon*) have been recorded in on near the Proposed Development site, there is neither any obvious way in which the Proposed Development could exacerbate their spread nor any nearby European site whose qualifying features could be significantly affected in this way. Therefore there is **no Likely Significant Effect**.	None.
Disruption to flow of groundwater or reduction in volume of groundwater.	Excavations can potentially interfere with groundwater and affect qualifying or supporting habitats which rely on it. The nearest European site with potentially relevant habitats is 3 km distant at closest.	Excavations for foundations of buildings within the Proposed Development will in general (for most houses, apartments, etc.) be relatively shallow at approximately 1.5 m depth. Deeper excavations for basements will be localised and extend to approximately 5 m. Effects on groundwater would be localised, with no likelihood of effects on wetland habitats in the Rye Water Valley / Carton SAC at 3 km distance (at closest, with the nearest half of the SAC situated within or adjacent to the built-up area of Leixlip), nor on any other European sites much further afield. Therefore there is **no Likely Significant Effect.**	None
Operational phase			
Disturbance or other adverse effects on SCI / QI species or habitats, or supporting habitats, as a result of increased number of people and corresponding increase in recreational pressure.	An increase in the number of local residents may result in increased visitor numbers to European Sites. In addition, residents may also use habitats immediately surrounding the Proposed Development which could be utilised as functional land by SCI bird species outside of SPA boundaries.	There are three European Sites within 15 km of the Proposed Development, which is the maximum distance at which Weitowitz *et al* (2019) found there to be increases in recreational pressure on designated sites from new housing developments. In addition, residents using habitat immediately surrounding the Proposed Development, which may be suitable for SCI species occurring outside of the boundary of SPAs, may also result in increased disturbance effects. Weitowitz *et al* (2019) found that increases in housing consistently results in more visitors to protected sites. They found that this is particularly the case for 'on-foot' visitors that originate from housing within 1.5 km of a protected site. At sites provided with car parking opportunities, increased housing within 15 km also saw an increase in visitor numbers, although this was dependent on habitats present. The authors concluded that housing allocations closer to protected sites are likely to have a greater impact in terms of recreational pressure from increased visitor numbers. Therefore there is a **Likely Significant Effect from recreational pressure**, pending more detailed investigation, on Rye Water Valley / Carton SAC, Glenasmole SAC and South Dublin Bay and River Tolka Estuary SPA.	Rye Water Valley / Carton SAC, Glenasmole SAC, South Dublin Bay and River Tolka Estuary SPA
Waterborne pollution during operation of	Water from the site flows into the Barnhill Stream and thence the River Liffey, and	Surface water run-off from the Proposed Development could transport pollutants, on an on-going basis during operation if not appropriately treated. Foul water if not appropriately treated and managed could also enter the River Liffey Catchment. Waterborne pollution originating from the Proposed Development could not reach the upstream European Sites. For the downstream European	South Dublin Bay and River Tolka Estuary

qualifying or supporting habitats at downstream European Sites.	ultimately the coast 15 km to the east, and could transport pollutants to European Sites at Dublin Bay.	Sites at Dublin Bay, such pollution would be subject to the large dilution effect of the sea at Dublin Bay, in an estuarine environment subject to regular tidal flushing. However, the Standard Data Form for South Dublin Bay SAC (but not South Dublin Bay and River Tolka Estuary SPA), indicates that marine pollution (H03) is considered of medium importance and results from both internal and external sources.This could be exacerbated by on-going operational waterborne pollution from the Proposed Development if not appropriately mitigated. Therefore there is a **Likely Significant Effect from operational pollution** on South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA and South Dublin Bay SAC without mitigation.	SPA, North Bull Island SPA, South Dublin Bay SAC
Increase in number of predators, specifically domestic cats.	An increase in the number of cats, which are predators of various small animal and bird species, is likely during operation of the Proposed Development, and these could predate SCI species.	The nearest European site designated for bird species is 15 km from the Proposed Development. The maximum linear distance travelled by domestic cats has been referenced as being 3 km (Floyd and Underhill-Day, 2013). It is impossible therefore that cats from the Proposed Development would predate SCI bird species in the actual SPA. Brent goose, oystercatcher and redshank are the only SCI species that (according to habitat preferences set out in Forrester *et al* 2007) are likely to utilise inland fields beyond coastal areas for foraging and roosting at certain times (for example, at high tide or in bad weather). Curlew is likely to be part of the general SCI wetland and waterbird assemblage, and this species also utilises inland fields. Regular use of these fields by these species is improbable for birds associated with the SPA, given the distance (approximately 15 km) of the Site from the SPA to which they would need to return. With the exception of redshank these species are unlikely to be predated by domestic cats, which typically catch prey no larger than themselves (Floyd and Underhill-Day, 2013).However, fields in the area are large offering long lines of sight reducing the risk of predation, and as discussed above the fields at the Proposed Development are not considered important to SCI species given the distance from the nearest SPA and the abundance of similar grassland in the region. Therefore it is extremely unlikely that there would be any significant effect from increased predation of SCI bird species using fields near the Proposed Development. Cats are also known to very occasionally predate invertebrates – a review of six studies suggest invertebrates make up 1-2% of prey (Floyd and Underhill-Day, 2013). The QI of Rye Water Valley SAC include two species of invertebrate (whorl snails). However this site is over 3 km distant, beyond the normal maximum distance that cats travel. Additionally, these snails are minute species (shell height 2.6 mm maximum) which are highly unlikely to be predated by cats, and it is improbable that cats would hunt in the wetland habitat of these snails. Therefore no effect is considered remotely possible on Rye Water Valley SAC by this means. Therefore there is **no Likely Significant Effect**.	None.
Spread of invasive non-native species.	Planting of invasive non-native species in gardens / garden ponds and/or accidental spread of existing non-native species by people or pets (e.g. carrying seeds on fur), potentially to European Sites.	Irish law prohibits the sale of a list of invasive non-native species under the European Communities (Birds and Natural Habitats) Regulations 2011. Furthermore the sale of certain invasive non-native species is also banned under EU Regulation 1143/2014 on Invasive Alien Species, the list of which is continuously updated. This eliminates the possibility of such species being available for sale to be planted in gardens and ponds in a new housing development. There is also a 3 to 15 km separation distance between the Site and European Sites such that the spread of such species from the Proposed Development is extremely improbable even if such plants were planted. Therefore there is **no Likely Significant Effect**.	None.

* Receptors here means any Qualifying Interest(s) of SAC(s) and Special Conservation Interest(s) of SPA(s), and any other ecological features which support QI / SCI.

On the basis of the above, the following impacts have been screened out of the Appropriate Assessment because there is clearly no potential for Likely Significant Effects on any European Sites:

- disturbance or displacement of SCI bird species as a result of construction activity;
- direct loss of or damage to qualifying or supporting habitats during the construction phase;
- waterborne pollution affecting qualifying or supporting habitats during the construction phase of the Proposed Development;
- airborne pollution affecting qualifying or supporting habitats or QI species during construction;
- disruption to flow of groundwater or reduction in volume of groundwater during construction phase;
- increase in predation of SCI and QI species by domestic predators, particularly cats, during operation; and,
- spread of invasive non-native species during construction and operation.

Identified impact pathways that could result in Likely Significant Effects, pending further investigation, concern:

- waterborne pollution affecting qualifying or supporting habitats at downstream European Sites during the operational phase of the Proposed Development; and,
- disturbance of SCI species as a result of the increased number of people and corresponding increase in recreational pressure on all four European Sites within 15 km during the operational phase of the Proposed Development.

One or both of these Likely Significant Effects concerns each identified European site within the zone of influence of the Proposed Development, therefore none of the European Sites themselves can be screened out of Appropriate Assessment. Further consideration is therefore given in the remainder of this NIS to the potential for these particular impacts to result in adverse effects on the integrity of the identified European Sites.

5. Baseline information

5.1 Data sources

The baseline conditions relevant to this Appropriate Assessment screening have been established by AECOM through desk-based study and targeted field survey.

The following sources of information were reviewed as part of the desk study:

- Environmental Protection Agency (EPA) maps website (https://gis.epa.ie/EPAMaps/);
- NPWS Protected Sites in Ireland website (https://www.npws.ie/protected-sites);
- The Status of EU Protected Habitats and Species in Ireland (Article 17 Report) (https://www.npws.ie/publications/article-17-reports/article-17-reports-2019);
- information on local watercourses (www.catchments.ie) and water quality (www.epa.ie);
- information on soils, geology and hydrology in the local area (www.gsi.ie);
- records of QI / SCI species held online by the National Biodiversity Data Centre (NBDC).
- information on distribution of SCI bird populations from Bird Atlas 2007 – 11 (Balmer *et al*, 2013), excluding birds of prey, whose distribution were determined with reference to Hardey *et al* (2013);
- Fingal County Council Development Plan 2017 – 2023, including Appropriate Assessment Determination of March 2017;
- Barnhill Local Area Plan 2019, including Appropriate Assessment Screening of October 2018; and,
- National Biodiversity Action Plan 2017 – 2022.

5.2 Rye Water Valley / Carton SAC

The Rye Water Valley / Carton SAC covers an approximately 8 km stretch of the Rye Water and immediate river valley habitat (the total area of the SAC is 72 ha). The priority Feature of Interest for the site is petrifying springs habitat, represented by a mineral spring which represents 0.72 ha (1%) of the SAC and is reported to be in Good condition in the Natura 2000 Standard Data Form 2017. The mineral spring supports botanically rich calcareous flush / marsh habitat where the QI narrow-mouthed whorl snail and Desmoulin's whorl snail have been recorded. Populations of the two whorl snail species are noted on the Standard Data Form as data deficient and population numbers could not be ascertained.

The conservation objectives for the SAC are to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected (petrifying springs, narrow-mouthed whorl snail and Desmoulin's whorl snail).

Relevant threats and pressures to the SAC in the context of this assessment are those associated with urbanisation (i.e. the gradual increase in the proportion of people living in urban areas) and possibly, by association, the modification of structures of inland watercourses.

5.3 Glenasmole Valley SAC

The Glenasmole SAC is located south-west of Dublin and covers approximately 150 ha. The QI are habitats whose area and conservation status (as reported in the Natura 2000 Standard Data Form, 2017) are shown in Table 3. Note that the SAC is considerably larger than the areas of the qualifying habitats, hence the total percentage cover of these habitats is only about 25% of the SAC.

Table 3. Features of Interest for the Glenasmole Valley SAC

Annex I habitat	Area (ha)	Relative cover of SAC (%)	Conservation status
semi-natural dry grasslands and scrubland facies on calcareous substrates, important orchid sites [6210]	29.86	20	Good
Molinia meadows on calcareous, peaty or clayey-silt-laden soils [6410]	7.26	4.86	Good
petrifying springs with tufa formation [7220]	1.49	0.99	Good

The conservation objectives for the SAC are to maintain or restore the favourable conservation condition of the Annex I habitat(s) for which the SAC has been selected.

The only high level threat identified on the Natura 2000 Standard Data Form is hydrological changes. Medium and low level threats includes various infrastructure threats, forestry, pollution and agriculture, but recreational pressure is not identified as a threat at any level. This may be because the qualifying habitats are not particularly easily accessible and/or wet.

5.4 South Dublin Bay and River Tolka Estuary SPA

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dún Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. The site is important for wintering waterfowl. Common and Arctic tern breed in Dublin Docks on manmade structures and south Dublin Bay is an important staging post for tern species. A summary of the SCI species of the SPA is given in Table 4.

Table 4. SCI of the South Dublin Bay and River Tolka Estuary SPA

Species	Baseline SPA population	Recent population estimates (2006/07 – 2010/11)	Conservation condition (NPWS, 2014)
Light-bellied brent goose [A046]	525	854	Favourable
Oystercatcher [A130]	1,263	1,965	Favourable
Ringed plover [A137]	161	345	Unfavourable

Species	Baseline SPA population	Recent population estimates (2006/07 – 2010/11)	Conservation condition (NPWS, 2014)
Grey plover [A141]	45^	N/A#	Unfavourable
Knot [A143]	1,151	1,934	Favourable
Sanderling [A144]	349	466	Favourable
Dunlin [A149]	2,753	3,383	Favourable
Bar-tailed godwit [A157]	866	446	Favourable
Redshank [A162]	713	633	Favourable
Black-headed gull [A179]	3,040	2,023	Unfavourable
Roseate tern [A192]	500	N/A#	Not provided
Common tern [A193]	3,000	N/A#	Not provided
Arctic tern [A194]	2,000	N/A#	Not provided
Wetland and waterbirds [A999]	N/A	N/A	Not provided

Population size taken from the Conservation Objectives Supporting Document (NPWS, 2014), except:
^ Population size taken from the Natura 2000 Standard Data form for the site, in the absence of such information on the Conservation Objectives supporting document.
# The only population information available is that presented on the Natura 2000 Standard Data form for the site.

The following species listed on the Natura 2000 Standard Data Form are also present at South Dublin Bay and River Tolka SPA but are not considered SCI by NPWS, since their populations do not meet NPWS criteria for SCI species in Ireland (NPWS, 2014): great crested grebe *Podiceps cristatus*, cormorant *Phalacrocorax carbo*, red-breasted merganser *Mergus serrator*, curlew *Numenius arquata*, turnstone *Arenaria interpres*, Mediterranean gull *Larus melanocephalus*, common gull *Larus canus* and common tern *Sterna hirundo*. However, these species do contribute to the overall 'Wetland and waterbirds' assemblage.

The conservation objectives in relation to the SCI species of the South Dublin Bay and River Tolka Estuary SPA are:

- to maintain the favourable conservation condition of the Special Conservation Interest species:
  - to be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing;
  - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- to maintain the favourable conservation condition of the wetland habitat in South Dublin Bay and River Tolka Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it:
  - the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 ha, other than that occurring from natural variation.

Existing pressures on the SPA are described in the Conservation Objectives Supporting Document, published by NPWS (NPWS, 2014). This document identifies that Dublin Bay is subject to significant recreational pressure as a consequence of its proximity to a major population centre. Recreational activity in the form of walkers, both with and without dogs, is known to be widespread across the SPA and of a 'highly active level' in certain areas. A study carried out in the Irishtown area of south Dublin Bay (Phalan and Nairn, 2007) found that dogs off the leash accounted for nearly half of all disturbance events recorded. However, it also identified in NPWS (2014) that human recreational activities at coastal areas occur less frequently during winter months.

5.5 South Dublin Bay SAC

South Dublin Bay SAC is located on the coast of Dublin and covers 741.79 ha; it is partially coincident with the South Dublin Bay and River Tolka Estuary SPA. The Features of Interest for this SAC are mudflats and sandflats, annual vegetation of drift lines, *Salicornia* and other annuals colonising mud and sand and embryonic shifting

dunes. These habitats, their area and conservation status (as reported in the Natura 2000 Standard Data Form, 2017) are shown in Table 5.

Table 5. Features of Interest for the South Dublin Bay SAC

Annex I habitat	Area (ha)	Relative cover of SAC (%)	Conservation status
Mudflats and sandflats not covered by seawater at low tide	719.94	97.05	Good
Annual vegetation of drift lines	0.01	0.0013	Good
Salicornia and other annuals colonising mud and sand	0.01	0.0013	Good
Embryonic shifting dunes	0.03	0.004	Good

The conservation objectives for the SAC are:

- To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC.

The following sub-targets have been defined to support achievement of this objective:

1. Ensure the permanent habitat area is stable or increasing, subject to natural processes.
2. Maintain the extent of the *Zostera*-dominated community, subject to natural processes.
3. Conserve the high quality of the *Zostera*-dominated community, subject to natural processes.
4. Conserve the following community type in a natural condition: Fine sands with *Angulus tenuis* community complex.

Several High ranked threats to the South Dublin Bay SAC have been identified, those relevant to this assessment comprising: recreation including walking, horse-riding and non-motorised vehicles. Relevant Medium threats and pressures are marine pollution, nautical sports, creation of paths and tracks and bait digging/collection for fishing.

5.6 North Bull Island SPA

North Bull Island SPA covers all of the inner part of north Dublin Bay, with a seaward boundary extending from the Bull Wall Lighthouse across to Drumleck Point at Howth Head. It is of international importance for its assemblage of waterfowl, regularly supporting more than 20,000 birds. A summary of the SCI species of the SPA is given in Table 6.

Table 6. SCI of the North Bull Island SPA

Species	Baseline SPA population (1995/96 – 1999/2000)	Recent population estimates (2006/07 – 2010/11)	Conservation condition (NPWS, 2014)
Light-bellied brent goose [A046]	1,548	3,443	Favourable
Shelduck [A048]	1,259	913	Intermediate Unfavourable
Teal [A052]	953	921	Favourable
Pintail [A054]	233	156	Intermediate Unfavourable
Shoveler [A056]	141	123	Unfavourable
Oystercatcher [A130]	1,784	1,772	Favourable
Golden plover [A140]	2,033	1,094	Unfavourable
Grey plover [A141]	517	380	Unfavourable
Knot [A143]	2,837	3,542	Favourable
Sanderling [A144]	141	271	Favourable
Dunlin [A149]	4,146	3,734	Favourable
Black-tailed godwit [A156]	367	873	Favourable
Bar-tailed godwit [A157]	1,529	1,627	Favourable

Species	Baseline SPA population (1995/96 – 1999/2000)	Recent population estimates (2006/07 – 2010/11)	Conservation condition (NPWS, 2014)
Curlew [A160]	937	918	Favourable
Redshank [A162]	1,431	2,356	Favourable
Turnstone [A169]	157	238	Favourable
Black-headed gull [A179]	2,196	1,527	Unfavourable
Wetland and waterbirds [A999]	N/A	N/A	Not provided

Population data taken from the Conservation Objectives Supporting Document (NPWS, 2014), except:
^ Population size taken from the Natura 2000 Standard Data form for the site, in the absence of such information on the Conservation Objectives supporting document.
# The only population information available is that presented on the Natura 2000 Standard Data form for the site.

The following species listed on the Natura 2000 Standard Data Form are also present at North Bull Island SPA but are not considered SCI by NPWS, since their populations do not meet NPWS criteria for SCI species in Ireland (NPWS, 2014): wigeon *Anas penelope*, mallard *Anas platyrhynchos*, red-breasted merganser, little stint *Calidris minuta*, curlew sandpiper *Calidris ferrugineus*, ruff *Philomachus pugnax*, spotted redshank *Tringa erythropus*, greenshank *Tringa nebularia*, common gull and short-eared owl *Asio flammeus*. However, apart from short-eared owl, these species do contribute to the overall 'Wetland and waterbirds' assemblage.

The conservation objectives in relation to the SCI species of the North Bull Island SPA are:

- to maintain the favourable conservation condition of the Special Conservation Interest species:
  - to be favourable, the long-term population trend for each waterbird Special Conservation Interest species should be stable or increasing;
  - to be favourable, there should be no significant decrease in the range, timing or intensity of use of areas by the waterbird species of Special Conservation Interest, other than that occurring from natural patterns of variation; and,
- to maintain the favourable conservation condition of the wetland habitat in North Bull Island SPA as a resource for the regularly-occurring migratory waterbirds that utilise it:
  - the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1,713 ha, other than that occurring from natural variation.

Identified pressures upon the North Bull Island SPA are described by NPWS in the same Conservation Objectives Supporting Document as for South Dublin Bay and River Tolka Estuary SPA, described above (NPWS, 2014). The pressures being exerted on both sites are broadly consistent since they are both in Dublin Bay.

In terms of recreational pressure, North Bull Island is an important amenity area and is managed as a public park and Nature Reserve by Dublin City Council. A Management Plan, commissioned by Dublin City Council in 2009, sets out a range of management issues and recommendations. These include managing vehicles on Dollymount Strand, which was previously used for driving practice by learner-drivers, and restricting access along the beach via bye-laws. Various watersports occur on Dollymount Strand and, due to their potential impacts on wildlife, measures have been taken to regulate them, including restricting their occurrence to certain areas. People are requested to keep dogs on leads, via Dublin City Council bye-laws. In addition, Sutton Beach, which is managed by Fingal County Council, is also subject to by-laws which specify restrictions to dog walking and horse riding, as well as the use of powered watercraft.

6. Appropriate assessment

6.1 Waterborne pollution of downstream European Sites during the operational phase of the Proposed Development

The Barnhill Local Area Plan (2019 – 2025) is part of the Fingal Development Plan, providing a framework for the planned, co-ordinated and sustainable development of the Barnhill area. The Proposed Development lies within and comprises the vast majority of the Barnhill Local Area Plan (LAP) area. The Barnhill LAP was subject to Appropriate Assessment screening (Fingal County Council, 2019), which concluded that there would be no significant effect on European Sites, either alone or in-combination with other plans or projects. This conclusion was reached having considered existing measures to avoid possible pollution of the River Liffey Catchment and downstream European Sites at Dublin Bay, comprising the following:

- A completed Flood Risk Assessment for Barnhill LAP, which identified land (near the Barnhill Stream, particularly towards the east) that are inappropriate for Development;
- The requirement that development in the Barnhill LAP area restricts surface water run-off in accordance with the Greater Dublin Strategic Drainage Study and the Greater Dublin Region Code of Practice for Drainage Works Version 6.0, such that discharge from new development is restricted to that of a greenfield site;
- Limitation of development in Barnhill LAP to that which can be provided clean water from the Leixlip Water Treatment Plant; and,
- Upgrading of the Ringsend Waste Water Treatment Plant and sewer network to meet the demands of development within the Barnhill LAP and other development areas, which had commenced at the time the Barnhill LAP Appropriate Assessment Screening was produced.

The above requirements are met by the Proposed Development as follows:

- In terms of flooding, the Proposed Development has taken account of flood risk and designed the masterplan layout in accordance with the findings of the flood risk assessment (McCloy Consulting, 2022), avoiding inappropriate construction in flood risk areas.
- With regard to treatment of surface waters, the Proposed Development incorporates the recommendations of the SuDS Strategy Report for Barnhill LAP (Clifton Scannell Emerson Associates, 2021), to ensure that no untreated surface water run-off is directly discharged into any watercourse. This includes controls such as permeable paving, rainwater butts, an underground stormwater system, infiltration trenches, retention (with modification as necessary) of much of the existing ditch network, retention of many existing trees and lengths of hedgerow, and construction of a pond/wetland within the floodplain in a public park area. The effectiveness of the SuDS measures will be monitored using monitoring devices along the ‘SuDS train’;
- Water will be supplied to the Proposed Development via a new watermain from the existing network on Ongar Road, fed from Ballycoolin Reservoir and itself fed by rising mains from Leixlip Water Treatment Plant; and,
- Upgrading of the Ringsend Waste Water Treatment Plant is underway and due for completion in 2023. Major upgrade of the sewer network, including twinning of the existing sewer, is also currently in progress and is expected to be completed in 2022/2023. The foul discharge from the Proposed Development will feed into the extra capacity of this combined upgraded water treatment plant and sewer system.

With further regard to the Ringsend Waste Water Treatment Plant, a judicial review of the Barnhill LAP (2019/208 O’Cairbre v. Fingal County Council) decided in August 2020 that the Barnhill LAP was lawful in this respect because the LAP requires adequate waste water disposal to be available for development at Barnhill.

With the above measures in place, and in common with the conclusion of the Barnhill LAP Appropriate Assessment Screening (Fingal County Council, 2019) and the judicial review 2019/208, it is concluded that there will be **no adverse effect on the integrity of any European Site** as a result of pollution from the Proposed Development.

6.2 Recreational pressure on European Sites during the operational phase of the Proposed Development

There are three SPAs within 15 km of the Proposed Development, the distance at which Weitowitz *et al* (2019) found there to be increases in recreational pressure on designated sites from new housing developments. The effect of increased recreational pressure as a result of the Proposed Development on each European site is discussed below.

6.2.1 Rye Water Valley / Carton SAC

The study by Weitowitz *et al* (2019) indicates that visitors to nature conservation sites typically reside within 4.4 km (median value) of the site. The Rye Water Valley is located 3 km from the Proposed Development. The study also suggested that increased on-foot access was only significant within 1.5 km of a site and that parking provision and habitat influenced visitor numbers.

As the Rye Water Valley / Carton SAC is located further than 1.5 km, it is assumed that most visitors to the site from the Proposed Development would travel by car. There are no formal carparks associated with the SAC and visitors would need to park to the north-west where there are carparks associated with attractions part of the Carton Estate or within the village of Lexlip to the south-east. The SAC covers a long stretch of watercourse (8 km) and the centre part of the SAC is very difficult to access directly due to the lack of roads and significant obstacles such as the railway and Collinstown Industrial Park, therefore it can be assumed that the majority of access would be from Carton and/or Lexlip. These areas of the SAC where parking is available are attractive destinations in themselves with several historic buildings and a large golf course at Calton Estate and the historic town of Lexlip itself. There are numerous formal footpaths associated with these areas, but only informal paths and tracks provide access to the Rye Water and other habitats associated with the SAC. In Lexlip the Salmons Leap and Lexlip Caslte are popular attractions but these are to the south of the Rye Water on the River Liffey. It is therefore probable that only a small proportion of people would visit Carton / Lexlip to access the SAC.

Weitowitz *et al* (2019) report that coastal sites are the most popular with visitors and so the river habitat associated with the SAC is likely to attract relatively less visitors, particularly as coastal sites are present approximately 15 km from the Proposed Development and these have formal carparking/access.

As a result of the lack of formal car parking, inconvenient access and presence of alternative recreational areas within the local and wider area, impacts upon the Rye Water Valley / Carton SAC as a result of increased recreational pressure from the Proposed Development are considered improbable.

Consequently, there is expected to be **no adverse effect on the integrity of Rye Water Valley / Carton SAC** from recreational pressure.

6.2.2 Glenasmole Valley SAC

The study by Weitowitz *et al* (2019) suggests that new housing development can increase visitor numbers to designated sites up to a range of 15 km. However, that study identified that 75% of all visitors to such sites live within 12.6 km. Glenasmole Valley SAC is located approximately 15 km from the Proposed Development at the very limit of possible visitor pressure effects, and any increase in visitor numbers is therefore expected to be low and insufficient to cause significantly increased recreational pressure. Additionally, the Standard Data Form indicates that recreational pressure is not even a low level threat, suggesting that the qualifying habitats are not easily accessible, and two of the qualifying habitats are also wet terrestrial habitats which would dissuade public access. Glenasmole Valley is also not a coastal site, which was identified by Weitowitz *et al* (2019) as the type attracting the most visitors.

Consequently, there is expected to be **no adverse effect on the integrity of Glenasmole Valley SAC** from recreational pressure.

6.2.3 South Dublin Bay and River Tolka Estuary SPA

As noted in Section 5.3.2, the study by Weitowitz *et al* (2019) suggests 75% of all visitors to designated sites live within 12.6 km. This European Site is located almost entirely more than 15 km from the Proposed Development, with only a very small proportion lying just within the 15 km buffer. The part that is just within the 15 km buffer is a section of the subsite called ‘0UL43 Fairview Park’ during waterbird surveys to inform the conservation objectives

of this European Site. No human disturbance issues were noted at this subsite during these surveys (in common with adjacent subsites 0UL44-46 in the vicinity of Dublin Port, and in contrast to other subsites), with often smaller numbers of SCI bird species and sometimes none recorded (NPWS, 2014). In combination, these points indicate that any recreational pressure effect from the Proposed Development is highly improbable, and that the conservation objectives of this SPA would not be comprised.

Consequently, there is expected to be **no adverse effect on the integrity of South Dublin Bay and River Tolka Estuary SPA**from recreational pressure.

6.3 Other principal plans or projects that may act 'in combination'

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2018).

The location of the Proposed Development at Barnhill is identified in the Fingal Development Plan 2017 – 2023 as a zone for new residential communities. The Natura Impact Report (RPS, 2017) and Appropriate Assessment determination (Fingal County Council, 2017b) determined that this Development Plan would not adversely affect the integrity of any European site, with the incorporation of modifications and measures set out in the Natura Impact Report. The latter include that individual plans and projects should carry out screening for Appropriate Assessment and where necessary full Appropriate Assessment. In pursuance of this requirement, this NIS for the Proposed Development has been produced.

The Fingal Development Plan shows that land to the east, south and west of the Proposed Development is zoned as High Amenity and/or as Open Space. There are numerous Objectives within the Development Plan which aim to protect, promote and enhance these zones including those relating specifically to the protection and enhancement of biodiversity. It is therefore likely that this land surrounding the Proposed Development will be sympathetically developed, if at all, and will be retained as open countryside. Therefore, plans or projects which will act 'in combination' are not likely for these areas.

The area immediately to the north of the Proposed Development (Hansfield SDZ) is also zoned as a Residential Area. However, this area is already largely developed, consisting of old and newly-built residential housing, educational facilities and remaining brownfield land from previous industry. Approximately 1.2 km further east along the railway is an area comprising both Residential Area and Open Space zoning which is the subject of a separate Local Area Plan (LAP 13.C). The Open Space zone would be expected to be retained as such. The intervening land between the Proposed Development and LAP 13.C is zoned as High Amenity and so is also likely to remain as open countryside.

The above two residential zones will themselves result in an increase in residents, which could also increase recreational pressure on European Sites, and these residential areas also constitute potential pollution sources that might contribute to adverse effects at the Dublin Bay European Sites. However, for the reasons given above in this NIS, it is not expected that any such effects would arise from the Proposed Development itself, therefore no cumulative effect is considered possible with these or other housing developments in the Dublin area.

There are also no possible beneficial effects of the Proposed Development on European sites that could lead to beneficial cumulative effects.

It is therefore concluded that there is **no potential for in-combination effects to arise with other projects or plans.**

7. Conclusion

The screening exercise set out in Section 4 of this NIS concludes that there is clearly no Likely Significant Effect on European Sites from the following impacts, which are therefore screened out of Appropriate Assessment:

- disturbance or displacement of SCI / QI species as a result of construction activity;
- direct loss of or damage to qualifying or supporting habitats during the construction phase;
- waterborne pollution affecting qualifying or supporting habitats during the construction phase of the Proposed Development;
- airborne pollution affecting qualifying or supporting habitats or QI species during construction;
- disruption to flow of groundwater or reduction in volume of groundwater during construction phase;
- increase in predation of SCI and QI species by domestic predators, particularly cats, during operation; and,
- spread of invasive non-native species during construction and operation.

The screening exercise concluded that Likely Significant Effects were possible, pending further investigation, for the following impacts:

- waterborne pollution affecting qualifying or supporting habitats at downstream European Sites during the operational phase of the Proposed Development; and,
- disturbance or other adverse effects on SCI / QI species or habitats, or supporting habitats, as a result of the increased number of people and corresponding increase in recreational pressure on the three European Sites within 15 km during the operational phase of the Proposed Development.

The Appropriate Assessment set out in Section 6 addresses in further detail the above two impacts.

Regarding waterborne pollution of downstream European Sites, the Proposed Development meets the requirements stipulated in the Barnhill LAP Appropriate Assessment Screening to avoid such pollution, namely a) avoidance of inappropriate development in flood risk areas, b) treatment of surface waters in accordance with the Barnhill SuDS strategy, and monitoring of the SuDS effectiveness, c) the capacity for the Proposed Development to be supplied with clean water from Leixlip Water Treatment Plant, and d) the discharge of foul water to an upgraded water treatment plant and sewer system prior to the Proposed Development proceeding, which are expected to be completed to cater for the additional capacity by 2023. For these reasons, there will be no adverse effect on the integrity of any European Site as a result of pollution from the Proposed Development.

Regarding recreational pressure on European Sites, possible adverse effects on European Site are ruled out for a combination reasons, comprising a) with respect to Rye Water Valley / Carton SAC, a lack of formal parking, inconvenient access and presence of alternative recreational areas in the surrounding area, b) location of Glenasmole Valley SAC at the very limit of possible recreational pressure effects, and concerning a non-coastal site and QI habitats that are not easily accessible, and c) location of South Dublin Bay and River Tolka Estuary SPA towards the limit of possible recreational pressure effects, with existing visitor management measures implemented through bye-laws such as control of watersports and prevention of off-leash dog walking. For these reasons, there is expected to be no adverse effect on the integrity of any European Site as a result of recreational pressure from the Proposed Development.

The lack of adverse (and beneficial) effects from the Proposed Development on European Sites also means that cumulative effects with other plans or projects are not possible.

Consequently, it is concluded that there will be no adverse effect on any European Site, either alone or in-combination with other plans or projects, as a result of the Proposed Development.

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9. Figures

Project Management Initials: PO Designer: ND Checked: TM Approved: PO

Scale: 1:25,000 @A3

AECOM

PROJECT

Barnhill NIS

CLIENT

Alanna Homes

Key

Proposed Development

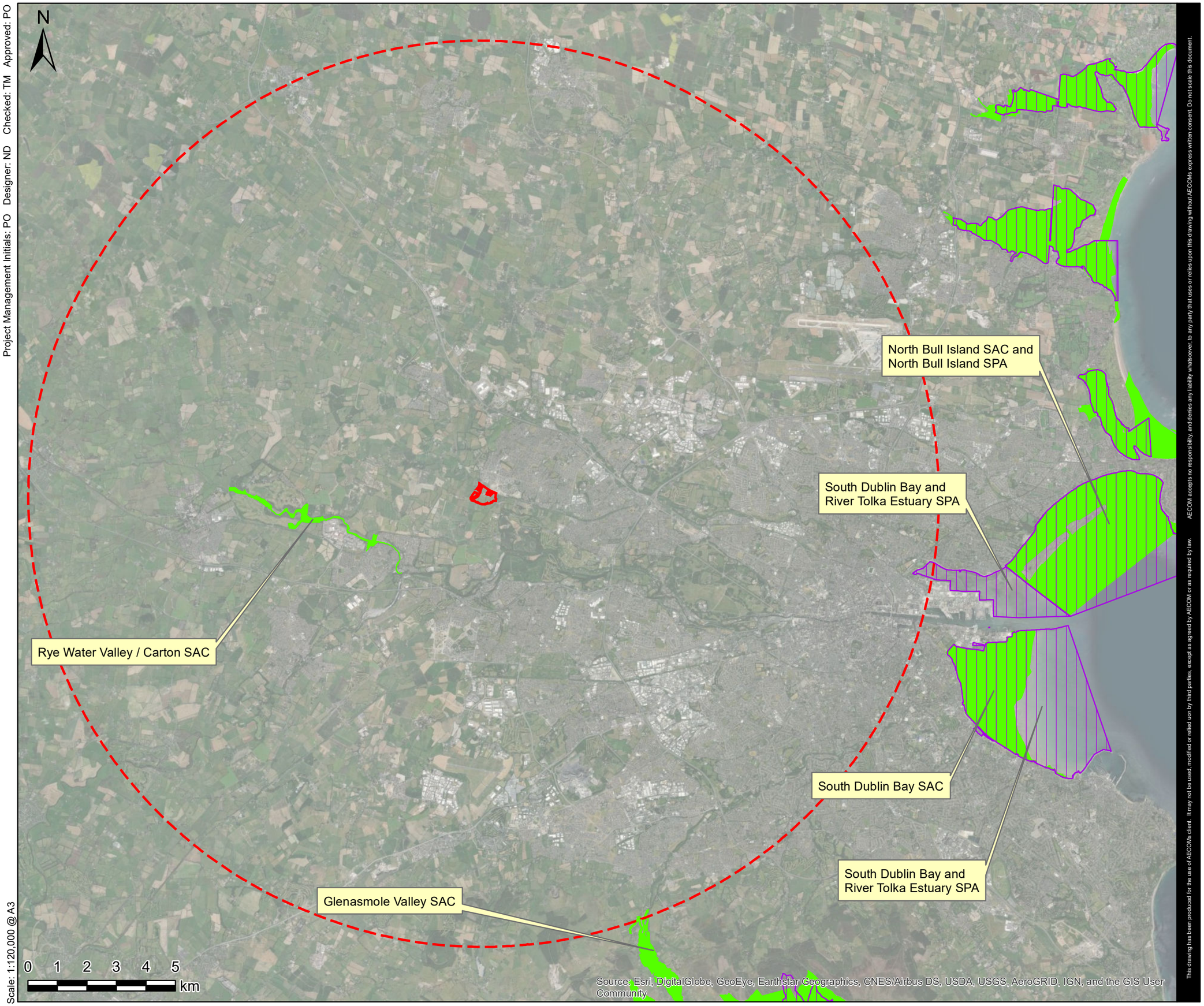
FIGURE

Figure 1 Location

SHEET NUMBER

1 of 1

Project Management Initials: PO Designer: ND Checked: TM Approved: PO



Scale: 1:120,000 @ A3

AECOM

PROJECT

Barnhill NIS

CLIENT

Alanna Homes

Key

- 15 km buffer
- Proposed Development
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)

FIGURE

Figure 2 European Sites

SHEET NUMBER

1 of 1