



Restoration of Bay Lane Quarry

Natura Impact Statement

March 2019





Bay Lane Soil Recovery Facility

Natura Impact Statement (NIS)

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1 INTRODUCTION

RPS was commissioned by GLV Bay Lane Limited (hereafter, 'GLV') to produce this Natura Impact Statement (NIS). This NIS will inform Fingal County Council's (FCC) Appropriate Assessment (AA) of a proposed Bay Lane Proposed Soil Recovery Facility (hereafter 'the proposed development') in the administrative authority of Fingal County Council, Co. Dublin.

This NIS has been prepared to accompany an application by Glenveigh Homes limited for planning permission from FCC, and assesses whether the proposed development at Bay Lane, alone or in combination with other plans and projects, is likely to have adverse effects on the integrity of any European site(s) (in accordance with the legal requirements set out in **Section 1**) in view of best scientific knowledge and the conservation objectives of the site(s).

1.1 LEGISLATIVE CONTEXT

1.1.1 European Sites

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, better known as "The Habitats Directive", provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of a European Union (EU)-wide network of sites known as Natura 2000 (hereafter referred to as 'European sites'). In the Republic of Ireland, European sites comprise:

- Special Areas of Conservation (SACs) designated for habitats, plants, and non-bird species, under the Habitats Directive (92/43/EEC);
- Special Protection Areas (SPAs) designated for bird species and their habitats, under the Birds Directive (79/409/ECC as codified by Directive 2009/147/EC); and,
- 'Candidate' sites including 'cSACs'. The process of designating cSACs as SACs is ongoing in Ireland. The term SAC is used throughout this report for both SACs and cSACs, given they are subject to equal protection.

1.1.2 Appropriate Assessment

1.1.2.1 European Context

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment (AA):

"Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In 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.”

Article 6(4) states:

“If, in spite of a negative assessment of the implications for the [European] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.”

1.1.2.2 National Context

Under Section 177U (5) of the Planning and Development Acts 2000-2010, as amended (‘the Planning Acts’), the competent authority (in this case, FCC) shall determine that an AA of a proposed development is required if it cannot be excluded [*emphasis added*], on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site(s).

Under Section 177V (2) the competent authority shall take into account each of the following matters in their AA determination:

- (a) The NIS (defined below);
- (b) Any supplemental information furnished in relation to an NIS;
- (c) If appropriate, any additional information sought by the planning authority and furnished by the applicant in relation to a NIS;
- (d) Any additional information furnished to the competent authority at its request in relation to a NIS;
- (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; and
- (g) Any other relevant information.

Under the Planning Acts (177T), an NIS is defined as “*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*”. The NIS must “*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*”.

1.1.3 Public Access to Environmental Information

The European Communities (Access to Information on the Environment) Regulations 2007 to 2014 (AEI Regulations) transpose Directive 2003/4/EC on public access to environmental information, which was adopted to give effect to the 'Access to Information' pillar of the Aarhus Convention (S.I. No. 615/2014).

The AEI Regulations give the public the right to access environmental information. The Regulations also oblige public authorities to be proactive in disseminating environmental information to the public and to make reasonable efforts to maintain environmental information and have it in a form that is accessible and can be reproduced.

1.2 STAGES OF APPROPRIATE ASSESSMENT

Stage 1: Screening / Test of Significance

This process identifies whether the proposed development is directly connected to or necessary for the management of a European site(s) and identifies whether the development is likely to have significant impacts upon a European site(s) either alone or in combination with other projects or plans.

The output from this stage is a determination for each European site(s) of not significant, significant, potentially significant, or uncertain effects. The latter three determinations will cause that site to be brought forward to Stage 2.

Stage 2: Appropriate Assessment

This stage considers the impact of the proposed development on the integrity of a European site(s), either alone or in combination with other projects or plans, with respect to: (i) the site's conservation objectives; and (ii) the site's structure, function and its overall integrity. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts is undertaken.

The output from this stage is a Natura Impact Statement (NIS). This document must include sufficient information for the Competent Authority to carry out the appropriate assessment. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must consider alternatives (Stage 3) or proceed to Stage 4.

Stage 3: Assessment of Alternatives

This process examines alternative ways of achieving the objectives of the project that avoid adverse impacts on the integrity of the European site. This assessment may be carried out concurrently with Stage 2 in order to find the most appropriate solution. If no alternatives exist or all alternatives would result in negative impacts to the integrity of the European sites then the process either moves to Stage 4 or the project is abandoned.

Stage 4: Assessment where Adverse Impacts Remain

This stage includes the identification of compensatory measures where, in the context of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

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2 PROPOSED DEVELOPMENT

The proposed development consists of backfilling an existing quarry void to restore natural ground levels. The proposed development is located on Bay Lane, Dublin 15, and is connected to the M2, via the Cherryhound Tyrellstown Link Road. The site area is approximately 13.67 ha in total and original ground level lies approximately 59 m above Ordnance Datum. The quarry void extends over an area of 8.59 ha. The proposed development is bounded by Bay Lane to the south, and agricultural lands to the west, north, and east (hereafter 'the proposed development site').

This application seeks permission for restoration of a 740,000 m³ void that requires backfilling to restore the quarry to natural ground levels. This will fill the quarry with clean soil and stone waste and then cover with a soil layer. An EPA waste licence will be sought for the proposed development, for the acceptance of clean inert soil and stone material (EWC 17 05 04 and 20 02 02), only.

There remains evidence of significant rock excavation and crushed stone production within the proposed development site. This extraction work has left a pit volume of c. 828,963 m³. The pit floor is generally flat with a layer of soil or stone. Within the open pit, small mounds of aggregate still remain, awaiting transport offsite. The north eastern section of the proposed development site has not been excavated for quarrying purposes. A volume of c. 116,834 m³ topsoil and unsuitable stone from quarrying (overburden), has previously been stockpiled in this area (See **Drawing 6A, Appendix A**). Operations at the quarry halted in circa 2008, and the quarry has been inactive since then.

GLV has identified a shortage in available soil and stone treatment capacity in the Dublin market to support its current business. It is their intention to secure soil and stone treatment capacity to support its business needs. With this in mind, GLV purchased Bay Lane Quarry in 2018. Its intention is to develop Bay Lane Quarry into a soil and stone recovery facility in the course of restoring the facility.

2.1 PROJECT DESCRIPTION

2.1.1 Construction/Staging

It is estimated that the works would take approximately three years, if consented, with the bulk of the operations comprising the backfill and restoration of the quarry void taking approximately 30 months with the importation of an estimated 740,000 m³ of inert waste which would be brought into discrete areas of the site on a phased basis, with backfilling of a single area at a time. As each area is filled, it would be covered with topsoil, with an estimated 27,000 m³ required for the entire project. Construction/staging, including de-watering and advanced works, will take c. 1 month to complete.

2.1.1.1 Dewatering

The quarry is subject to water inundation. In early October 2018, the water was confined to a sump pit in the corner area to north west of pit, closest to the link road roundabout. During the heavy rainfall period from October 2018 - January 2019 the quarry floor was covered in water to a depth of over 1 meter. This inundation will prevent activities on the quarry floor and may also pose a safety hazard.

The proposed development site has an existing concrete water settlement tank, for which all surface waters from the previous quarry operations were discharged into a drainage ditch along the southeast boundary, under a Local Authority Discharge Licence.

GLV proposes to dewater the quarry. GLV will apply to Fingal County Council for a new licence to pump surface water from the quarry floor into the retention tank, and then to discharge the water into the adjacent ditch, which flows into the Shallon Stream. The proposed temporary holding pond and the settlement tank will provide storage for up to the 50-year return period whilst the peak flow discharge to the unnamed stream is limited to greenfield run-off rate to reduce the flooding downstream. The 100-year return period event can be stored on site and will not be discharged downstream during a flood event. These works are estimated to take approximately 1 month to complete. This operation can only be done under Local Authority permit, and will ensure that suspended solids would not lead to a deterioration of the watercourse.

2.1.1.2 Enabling and Advanced Works

Upon completion of the bulk drainage at the site, which is proposed for the summer months, the advance works will be undertaken within a short timeframe. These would include:

- Installation of temporary site offices and welfare facility;
- Creation of car park hardstanding and installation of security/perimeter lighting;
- Installation of wheel wash;
- Installation of weighbridge;
- Installation of quarantine area at dedicated concrete hardstanding;
- Preparation of revised internal unpaved road network to manage plant and vehicle movements to the deposition areas in the quarry; and
- Installation of packaged wastewater treatment plant¹.

2.1.2 Operation

As the site becomes operational there will be a need to maintain a dry working surface in the quarry floor. This will require pumping of water to the settlement tank for the duration of the project or until such time that ponding water can drain through the soil layers. This process will be a continuation of that described in **Section 2.1.1.1**; however, it will be subject to a separate application for an EPA Waste Licence.

The bulk of the site operations in terms of activity and duration of the project will revolve around the daily deliveries of inert soil and stone. Once weighed and accepted for processing, the material will be deposited in the area in active use. It will be checked for contamination prior to backfilling. Contaminated material will in the first instance be refused or reloaded onto the delivering vehicle. If

¹ Sanitary effluent water will be generated from the canteen, toilet and wash facilities. All effluent will be collected in a sealed underground pipe network and discharged to a packaged wastewater treatment plant. Treated effluent will be percolated to ground at a treatment / percolation area location to be identified based on percolation testing. The system will be appropriately sized and will operate in compliance with appropriate code of practice for a facility, e.g. EPA Code of Practice: Wastewater Treatment Systems for Single Houses (EPA, 2009).

this is not possible, it will be brought to a dedicated quarantine area which shall be constructed atop concrete hardstanding. If the material is found to be in contravention of the permitted waste category, it will be brought off site for treatment at an appropriately licenced facility.

2.1.2.1 Programme and Phasing

It is estimated that the works would take c. 2.5 years, if consented, with the bulk of the operations comprising the backfill and restoration of the quarry void taking approximately 30 months. Phasing, as outlined in **Drawing 6C (Appendix A)**, will be completed as follows:

Phase 1: Filling of the area north east of the haul route between the two reception area ramps to final restoration profile. This phase of the development will result in the completion of backfilling of north eastern part of the site to final restoration profile.

Phase 2: Filling of the area south west of the haul route between the two reception area ramps to final restoration profile. This phase of the development will result in the completion of backfilling of south western corners of the site to final restoration profile.

Phase 3: Filling of the haul route between the two reception area ramps to final restoration profile.

Phase 4: On completion of the filling stage, a covering layer of subsoil and topsoil will be placed and graded across the filled soil and stone. This topsoil will then be planted with grass to promote stability and to minimise soil erosion and dust generation.

2.1.3 Restoration

Upon backfilling of the phased quarry areas, redundant structures, plant equipment and stockpiles of unused material will be removed from site. The hard-standing areas will be broken up and the material recovered. The site access gateway will be retained.

As part of the restoration process, the packaged wastewater treatment system will also be removed. Therefore, there will be no potential for sewage to cause long-term water pollution following cessation of restoration activities.

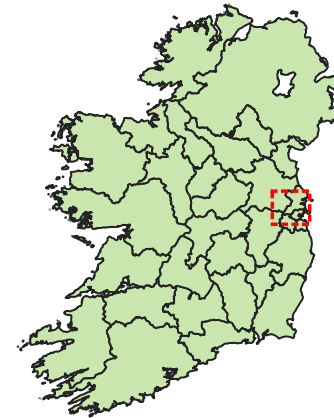
It is proposed to restore the site's surface to its pre-extraction level, slightly domed to allow runoff, and compacted to prevent for future subsidence. An aftercare scheme will be implemented with the aim of bringing the restored soil and stone (and thereby the lands) into a condition which does not need to be treated differently from undisturbed land in the same use. The final restoration of the site will facilitate an after-use potential similar to that which existed prior to extraction works. As each of the phased areas is filled, it is proposed to commence spreading topsoil on them and 'green up' the area to help stabilise the ground and reduce the potential for sediment-laden water generation.

The proposed restoration will be carried out in accordance with the proposed landscaping plan (RPS, 2019a) submitted as part of an EIAR to Fingal County Council (see **Restoration Plan** Drawing in **Appendix A**). The proposed development site will then be seeded with grass at an agreed minimum rate.



Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend



- Proposed Development
- ➔ River Shallon

Client
GLV Bay Lane Limited

Project **Bay Lane Soil Recovery Facility**

Title
Figure 2.1: Site Location Plan

RPS RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900

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3 METHODOLOGY

3.1 GUIDANCE DOCUMENTS ON APPROPRIATE ASSESSMENT

Appropriate Assessment Guidelines for Planning Authorities have been published by the Department of the Environment Heritage and Local Government (DEHLG, 2010a). In addition to the advice available from the Department, the European Commission has published a number of documents which provide a significant body of guidance on the requirements of Appropriate Assessment, most notably including, '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' (EC, 2001), which sets out the principles of how to approach decision making during the process. These principal national and European guidelines have been followed in the preparation of this AA Screening. The following list identifies these and other pertinent guidance documents:

- Office for Official Publications of the European Communities, Luxembourg (EC, 2000), Communication from the Commission on the Precautionary Principle;
- Office for Official Publications of the European Communities, Luxembourg (EC, 2018), Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Revised November 2018);
- Office for Official Publications of the European Communities, Brussels (EC, 2001), Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC;
- European Commission (EC 2007), Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission;
- Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a), Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities;
- Department of Environment Heritage and Local Government Circular NPW 1/10 and PSSP 2/10 on Appropriate Assessment under Article 6 of the Habitats Directive – Guidance for Planning Authorities (DEHLG, 2010b);
- European Commission (EC, 2013), Interpretation Manual of European Union Habitats. Version EUR 28;
- The Status of EU Protected Habitats and Species in Ireland. Habitats Assessments Volume 2; and NPWS 2013a,b,c)

EC (2000) notes that the implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty, and also that decisions taken based on the precautionary principle should be maintained so long as scientific information is incomplete or inconclusive. EC (2001) notes also that predicting the response of a receptor to a disturbance effect can be difficult and, in the absence of firm scientific information, requires a precautionary approach.

There have been significant changes to AA practice since both the EC (2001) and the DoEHLG guidance (2010), arising from rulings in European, UK and Irish courts. The following issues have been addressed in the preparation of this NIS:

- Cataloguing the entirety of the habitats and species for which each European site is protected²;
- Examination of the implications of the proposed development for the species present on a European site, and for which the site has not been listed¹. This is understood to include habitats and species providing supporting or secondary services to those listed for the European site designation;
- Examination of the implications for habitat types and species to be found outside the boundaries of the site, provided that in each case those implications are liable to affect the integrity of the site¹;
- Identification, in light of best scientific knowledge in the field, all aspects of the development which can, by itself or in combination with other plans or project, affect the European site in light of its conservation objectives³;
- Inclusion of complete, precise and definitive findings and conclusions, and the removal of gaps following an evaluation of the potential for impacts in the light of the best scientific knowledge in the field²;
- Inclusion of a determination that the proposed development will/will not adversely affect the integrity of any European site where on the basis of complete, precise and definitive findings and conclusions made, the competent authority decides that no reasonable scientific doubt remains as to the presence/absence of the identified potential effects²;
- Making of findings explicit⁴; and
- Distinguishing between measures to avoid or reduce the impacts of the proposed development on European sites, and measures to compensate for damaging impacts; the latter of which cannot be taken into account⁵.

3.2 CONSULTATION

The following organisations were consulted by email or Telephone relation to this assessment:

- Development Applications Unit (DAU), Department of Culture, Heritage and the Gaeltacht;
- Local NPWS Conservation Ranger;
- Inland Fisheries Ireland (IFI);
- Irish Raptor Study Group; and
- Fingal County Council Biodiversity Officer.

Consultation undertaken for the proposed development is summarised in **Table 3.1**.

² Holohan v An Bord Pleanála (Court of Justice of the EU, case C-461/17)

³ Kelly v An Bord Pleanála [2014] IEHC 400 (High Court)

⁴ Connelly v An Bord Pleanála [2018] IESC 31 (Supreme Court)

⁵ Briels v Minister van Infrastructuur (Court of Justice of the EU, case C-521/12)

Table 3.1: Summary of Consultation Responses Relevant to Appropriate Assessment

Consultee	Method of Consultation	Summary of Consultation
The Development Applications Unit of the Department of Culture, Heritage and the Gaeltacht	Letter via Email	General Scoping comments regarding nature conservation and ecological Survey and sources of baseline data. Development of CEMP and the need to subject the project to Appropriate Assessment.
NPWS Conservation Ranger	Telephone	Consideration for presence of Peregrine and Newt, owing to known records in proximity. Email confirmation of commencement regarding commencement of Licenced surveys
Inland Fisheries Ireland	Letter via Email	No response received (at this time)
Irish Raptor Study Group	Telephone discussion	IRSG have no records up to 2017 of peregrine from the site.
Fingal County Council Biodiversity Officer	Telephone discussion	Need for seasonally appropriate, full survey data to complete impact assessment

3.3 ECOLOGICAL DATA

3.3.1 Desk Study

This assessment was informed by a desktop study, which assessed the potential for all Qualifying Interests (QIs; i.e. non-bird species and habitats) and Special Conservation Interests (SCIs; i.e. bird species and their habitats) of European sites to occur, given their ecological requirements identified by Balmer *et al.* (2013) for SCIs, and the National Parks and Wildlife Service (NPWS) for QIs (NPWS, 2013a,b,c).

SCI Birds and mobile QI species can travel many kilometres from their core areas, and desktop surveys assessed the potential presence of such species beyond the European sites for which they are QIs/SCIs. Desktop studies had particular regard for the following sources:

- EPA online interactive mapping tool⁶;
- Tabulated lists for all European sites in Ireland of SCIs and QIs, obtained through a data download of NPWS website;
- Information on ranges of mobile QI populations in Volume 1 of NPWS' Status of EU Protected Habitats and Species in Ireland (NPWS, 2013a), and associated digital shapefiles obtained from the NPWS Research Branch;
- Information on ranges of mobile SCIs bird populations from Bird Atlas 2007–11 (Balmer *et al.*, 2013), excluding birds of prey whose ranges were determined with reference to Hardey *et al.* (2013);

⁶ Available online at <https://gis.epa.ie/EPAMaps/default>. Accessed January 2019.

- Mapping of European site boundaries and Conservation Objectives for relevant sites in County Dublin and beyond, as relevant, available online from the NPWS;
- Distribution records for mobile populations of European sites held online by the National Biodiversity Data Centre (NBDC);
- Details of QIs/SCIs of European sites within the Fingal Biodiversity Action Plan 2010-2015 (FCC, 2010), which had not been updated at the time of writing;
- Data including surface and ground water quality status, and river catchment boundaries available from the online database of the Environmental Protection Agency (EPA);
- National and regional surveys of semi-natural habitats, including grasslands (O'Neill *et al.*, 2013), saltmarsh (McCorry and Ryle, 2009; Devaney and Perrin, 2015), and woodland (Perrin *et al.*, 2008);
- Information obtained from DAU and GSI through consultation (see **Section 3.2**); and
- Planning reports for the proposed development, including an AA Screening Report and an Environmental Impact Assessment Report (EIAR) (RPS, 2019 a,b).

3.3.2 Field Study

This report was informed by a habitat and protected species surveys of the proposed development site in October and December 2018, and February and March 2019 by RPS ecologists. The surveys assessed the potential for all QIs/SCIs of European sites and scheduled⁷ invasive species to occur, given their ecological requirements identified by Balmer *et al.* (2013) for birds, and the NBDC and NPWS for all other species/habitats (NPWS, 2013b,c).

The survey included checks of suitable habitats for all highly mobile QI/SCI species potentially occurring. For instance, the adjacent Shallow Stream was checked for the potential of common kingfisher *Alcedo atthis* nest sites, and potential breeding or resting sites of otter *Lutra lutra*. Numerous non-breeding SCI bird species travel many kilometres from their core areas, and surveys also assessed potential presence of roosting or feeding sites of such species. Species survey had regard for relevant guidance (e.g. NRA, 2009). The potential of any buildings, vegetation, or features within the Zone of Influence (Zoi) (**Section 3.4.1** Error! Reference source not found.) of the proposed development to offer nesting or roosting habitat to SCI bird populations, was assessed.

The breeding bird survey was undertaken over three different time periods over two days and included a visual and binocular examination of all rock faces, stone piles, rubble and crevices. Supplemental ad hoc records noted during visits were included in the bird list for the proposed development site. Following on from the preliminary walkover survey and consultation responses, a number of vantage point surveys, over 8 hours on two separate dates, were undertaken to understand usage of the site by peregrine falcon *Falco peregrinus*. Further studies informed by a visit by an RPS Raptor specialist Mr Adam McClure in the early part of the breeding season focussed on understanding peregrine activity above and adjacent to the quarry and vantage point surveys to identify nesting on site.

⁷ Invasive species scheduled to the EC (Birds and Natural Habitats) Regulations 2011-2015 ('the Regulations'). Under the Regulations, it is an offence to plant, disperse, allow or cause to disperse, spread or otherwise cause to grow in any place any species scheduled to the Regulations without a licence.

3.4 RELEVANT EUROPEAN SITES

The identification of relevant European sites to be included in this NIS was based on the identification of sources-pathways-receptors within the Zone of Influence (Zoi) of the proposed development.

3.4.1 Zone of Influence

The proximity of the proposed development to European sites, and more importantly QIs/SCIs of the European sites, is importance when identifying potentially significant effects. During the initial scoping of this NIS, a 15 km zone of influence was applied for impact assessment. A conservative approach has been used, which minimises the risk of overlooking distant or obscure effect pathways, while also avoiding reliance on buffer zones (e.g. 15 km), within which all European sites should be considered. This approach assesses the complete list of all QIs/SCIs of European sites in Ireland (i.e. potential receptors), instead of listing European sites within buffer zones. This follows Irish departmental guidance on AA:

“For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects” (DoEHLG, 2010; p.32, para 1).

Following the guidance set out by the NRA (2009), the proposed development has been evaluated based on an identified Zoi with regard to the potential impact pathways to ecological feature (e.g. mobile and static). The Zoi of the proposed development on mobile species (e.g. birds, mammals, and fish), and static species and habitats (e.g. saltmarshes, woodlands, and flora) is considered differently. Mobile species have ‘range’ outside of the European site in which they are QI/SCI. The range of mobile QI/SCI species varies considerably, from several metres (e.g. in the case of whorl snails *Vertigo* spp.), to hundreds of kilometres (in the case of migratory wetland birds). Whilst static species and habitats are generally considered to have Zois within close proximity of the proposed development, they can be significantly affected at considerable distances from an effect source; for example, where an aquatic QI habitat or plant is located many kilometres downstream from a pollution source.

Hydrological linkages between the proposed development and European site (and their Qis/SCIs) can occur over significant distances; however, the significance of the impact will be site specific depending on the receiving water environment and nature of the potential impact. As a precautionary measure, a reasonable worst-case Zoi for water pollution from the proposed development site is considered to be the surface water catchment. In this NIS, the surface water catchment is defined at the scale of Catchment Management Unit (CMU), as adopted in the River Basin Management Plan (RBMP) for Ireland 2018-2021 (DoHPLG, 2018).

In this NIS, therefore, ‘relevant’ European sites are those within the potential Zone of Influence (Zoi) of activities associated with the construction and operation of the proposed development, where adverse effects to integrity of QIs/SCIs of these European sites could arise.

3.4.2 Source-Pathway-Receptor Model

The likely effects of the proposed development on any European site has been assessed using a source-pathway-receptor model, where:

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives;
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor; and
- A 'receptor' is defined as the Special Conservation Interests (SCI) of SPAs or Qualifying Interests (QI) of SACs for which conservation objectives have been set for the European sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potentially Likely Significant Effects (LSEs) resulting in adverse effects on the integrity of a European site. These are termed as 'relevant' European sites/QIs/SCIs throughout this NIS.

3.4.3 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a *de minimis* level⁸. The opinion of the Advocate General in CJEU case C-258/11 outlines:

"the requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded. If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."

In this report, therefore, 'relevant' European sites are those within the potential Zol of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

⁸ *Sweetman v. An Bord Pleanála* (Court of Justice of the EU, case C-285/11). A *de minimis* effect is a level of risk that is too small to be concerned with when considering ecological requirements of an Annex I habitat or a population of Annex II species present on a European site necessary to ensure their favourable conservation condition. If low level effects on habitats or individuals of species are judged to be in this order of magnitude and that judgment has been made in the absence of reasonable scientific doubt, then those effects are not considered to be likely significant effects

4 RECEIVING ENVIRONMENT

This Section details the desktop and field survey results, in order to describe the relevant receiving environment of the proposed development. The relevant receiving environment relates to anything that may be directly or indirectly related to the QIs/SCIs of relevant European sites.

A further impact assessment of biodiversity within the Zol of the proposed development is detailed in the Environmental Impact Assessment Report (EIAR) for the proposed development (RPS, 2019a).

4.1 OVERVIEW OF THE PROPOSED DEVELOPMENT SITE

The surrounding landscape is largely characterised by large agricultural fields, although the lands which have been zoned General employment have in parts been developed. There are several commercial developments in close proximity including an extensive warehousing/logistics facility to the north and a small cement batching plant to the west, and a logistics facility has planning approval immediately adjacent to the quarry to the west. The extensive Huntstown quarry complex is c. 2 km due south of Bay Lane Quarry.

4.2 EUROPEAN SITES

There is a significant aggregation of designated sites in and around Dublin Bay and the County Dublin coastline, including European sites (SACs and SPAs), Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs), Ramsar sites, Nature Reserves and a UNESCO Biosphere Reserve. This screening exercise is restricted to European sites.

The European sites considered in this exercise are listed in **Figure 4.1: European Sites Considered in the Assessment**

Table 4.1 and shown in **Figure 4.1**. The spatial boundary data for the European sites shown in **Figure 4.1** was the most recent available online from NPWS (dated January 2019).

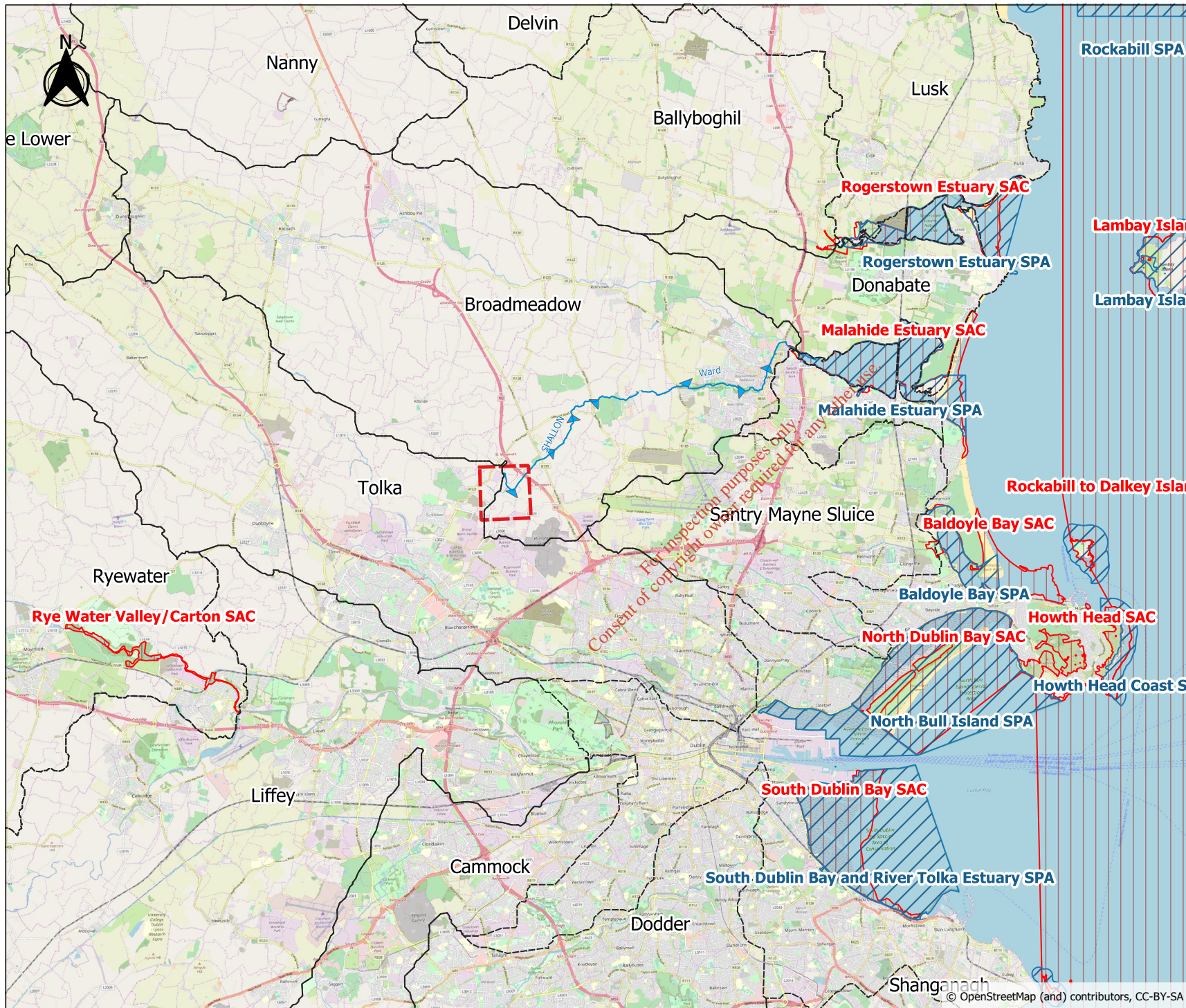
While there may be scientifically appropriate reasons for extending or reducing a study area depending on the source, pathway and receptors of potential impacts, with regard to the current proposal, a 15 km distance is considered both conservative and acceptable (as it includes all downstream European sites) to screen all likely significant effects that might impact upon European sites. The extent of the European site assessed in this report are illustrated in **Figure 4.1**.

European sites, and their QI/SCI features, within a 15 km buffer of the proposed development, are detailed in **Figure 4.1: European Sites Considered in the Assessment** Table 4.1. The distance from each European site to the proposed development, and a description of the potential connectivity is also detailed.

The Conservation Objective (CO) concept appears in the eighth recital of Directive 92/43/EEC which reads: “whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued”. Article 1 then explains that “conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status”.

NPWS publish COs for European sites on their website. NPWS advise in the general introductory notes of their Site-Specific Conservation Objective (SSCO) series publications that an appropriate assessment based on their “published conservation objectives will remain valid even if the conservation objective targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out”. NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited.

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Legend

- Study area
- Zone of Influence
- River waterbodies
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Data Source: NPWS (last updated: January 2019)

Client: **GLV Bay Lane Limited**

Project: **Bay Lane Soil Recovery Facility**

Title: **Figure 4.1: European Sites Considered in the Assessment**

RPS

RPS Consulting Engineers
West Pier Business Campus
Dun Laoghaire
Co. Dublin
Tel: +353 1 488 2900

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Table 4.1: European Sites Considered in the Assessment

Site Name and Code	Qualifying Interest Habitats and Species (*=Priority Habitat)	Distance from the Proposed Development ⁹	Connectivity
Special Area of Conservations (SACs)			
Baldoyle Bay SAC (000199)	<p>Conservation Objectives Specific Version 1.0 (19/11/12)</p> <p>Annex I Habitats:</p> <ul style="list-style-type: none"> ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ <i>Salicornia</i> and other annuals colonizing mud and sand [1310] ▪ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] ▪ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] 	c. 13.5 km east	<p>No.</p> <p>The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.</p>
Malahide Estuary SAC (000205)	<p>Conservation Objectives Specific Version 1.0 (27/05/13)</p> <p>Annex I Habitats</p> <ul style="list-style-type: none"> ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ <i>Salicornia</i> and other annuals colonizing mud and sand [1310] ▪ <i>Spartina</i> swards (<i>Spartinion maritimae</i>) [1320]** ▪ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] ▪ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] ▪ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") [2120] ▪ Fixed coastal dunes with herbaceous vegetation ("grey dunes")* [2130] 	c. 12.1 km northeast	<p>Yes.</p> <p>The European site is located downstream of the study area, with direct hydrological connectivity through the Shallon stream.</p>
North Dublin Bay SAC (000206)	<p>Conservation Objectives Specific Version 1.0 (06/11/13)</p> <p>Annex I Habitats</p> <ul style="list-style-type: none"> ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ Annual vegetation of driftlines [1210] ▪ <i>Salicornia</i> and other annuals colonizing mud and sand [1310] ▪ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] ▪ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] ▪ Embryonic shifting dunes [2110] ▪ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> 	c. 13.4 km southeast	<p>No.</p> <p>The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.</p>

⁹ Distance measured "as the crow flies" from proposed development closest to the European site.

Site Name and Code	Qualifying Interest Habitats and Species (*=Priority Habitat)	Distance from the Proposed Development ⁹	Connectivity
	("white dunes") [2120] <ul style="list-style-type: none"> ▪ Fixed coastal dunes with herbaceous vegetation ("grey dunes")* [2130] ▪ Humid dune slacks [2190] Annex II Species <ul style="list-style-type: none"> ▪ Petalwort (<i>Petalophyllum ralfsii</i>) [1395] 		
Rogerstown Estuary SAC (000208)	Conservation Objectives Specific Version 1.0 (14/08/13) Annex I Habitats <ul style="list-style-type: none"> ▪ Estuaries [1130] ▪ Mudflats and sandflats not covered by seawater at low tide [1140] ▪ <i>Salicornia</i> and other annuals colonising mud and sand [1310] ▪ Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] ▪ Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] ▪ Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] ▪ Fixed coastal dunes with herbaceous vegetation (grey dunes)* [2130] 	c. 12.7 km northeast	No. The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.
South Dublin Bay SAC (000210)	Conservation Objectives Specific Version 1.0 (22/08/13) Annex I Habitats <ul style="list-style-type: none"> ▪ Mudflats and sandflats not covered by seawater at low tide [1140] 	c. 13.5 km southeast	No. The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.
Rye Water Valley/Carton SAC (001398)	Conservation Objectives Generic Version 6.0 (21/02/18) Annex I Habitats <ul style="list-style-type: none"> ▪ Petrifying springs with tufa formation (Cratonuerion)* [7240] Annex II Species <ul style="list-style-type: none"> ▪ Narrow-mouthed Whorl snail (<i>Vertigo angustior</i>) [1014] ▪ Desmoulin's Whorl snail (<i>Vertigo moulinsiana</i>) [1016] 	c. 11 km southwest	No. The European site does not have direct hydrological connectivity with the study area. Thus, the designated site is not considered to be at risk from the proposed development.
Special Protection Areas (SPAs)			

Site Name and Code	Qualifying Interest Habitats and Species (*=Priority Habitat)	Distance from the Proposed Development ⁹	Connectivity
North Bull Island SPA (004006)	<p>Conservation Objectives Specific Version 1.0 (09/03/15)</p> <p>Qualifying Interests</p> <ul style="list-style-type: none"> ▪ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] ▪ Shelduck (<i>Tadorna tadorna</i>) [A048] ▪ Teal (<i>Anas crecca</i>) [A052] ▪ Pintail (<i>Anas acuta</i>) [A054] ▪ Shoveler (<i>Anas clypeata</i>) [A056] ▪ Oystercatcher (<i>Haematopus ostralegus</i>) [A130] ▪ Golden Plover (<i>Pluvialis apricaria</i>) [A140] ▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ▪ Knot (<i>Calidris canutus</i>) [A143] ▪ Sanderling (<i>Calidris alba</i>) [A144] ▪ Dunlin (<i>Calidris alpina</i>) [A149] ▪ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ▪ Curlew (<i>Numenius arquata</i>) [A160] ▪ Redshank (<i>Tringa totanus</i>) [A162] ▪ Turnstone (<i>Arenaria interpres</i>) [A169] ▪ Black-headed Gull (<i>Croicocephalus ridibundus</i>) [A179] ▪ Wetlands [A999] 	c. 13.4 km southeast	<p>No.</p> <p>The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.</p>
Rogerstown Estuary SPA (004015)	<p>Conservation Objectives Specific Version 1.0 (20/05/13)</p> <p>Qualifying Interests</p> <ul style="list-style-type: none"> ▪ Greylag Goose (<i>Anser anser</i>) [A043] ▪ Brent Goose (<i>Branta bernicla hrota</i>) [A046] ▪ Shelduck (<i>Tadorna tadorna</i>) [A048] ▪ Shoveler (<i>Anas clypeata</i>) [A056] ▪ Oystercatcher (<i>Haematopus ostralegus</i>) [A130] ▪ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ▪ Knot (<i>Calidris canutus</i>) [A143] ▪ Dunlin (<i>Calidris alpina alpina</i>) [A149] ▪ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] 	c. 10 km northeast	<p>No.</p> <p>The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.</p>

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Site Name and Code	Qualifying Interest Habitats and Species (*=Priority Habitat)	Distance from the Proposed Development ⁹	Connectivity
	<ul style="list-style-type: none"> ▪ Redshank (<i>Tringa totanus</i>) [A162] ▪ Wetlands [A999] 		
Baldoyle Bay SPA (004016)	<p>Conservation Objectives Specific Version 1.0 (27/02/13)</p> <p>Qualifying Interests</p> <ul style="list-style-type: none"> ▪ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] [wintering] ▪ Shelduck (<i>Tadorna tadorna</i>) [A048] [wintering] ▪ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] [wintering] ▪ Golden Plover (<i>Pluvialis apricaria</i>) [A140] [wintering] ▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141] [wintering] ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] [wintering] ▪ Wetlands [A999] 	c. 13.5 km east	No. The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.
South Dublin Bay and River Tolka Estuary SPA (004024)	<p>Conservation Objectives Specific Version 1.0 (09/03/15)</p> <p>Qualifying Interests</p> <ul style="list-style-type: none"> ▪ Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] ▪ Oystercatcher (<i>Haematopus ostralegus</i>) [A130] ▪ Ringed Plover (<i>Charadrius hiaticula</i>) [A137] ▪ Grey Plover (<i>Pluvialis squatarola</i>) [A140] ▪ Knot (<i>Calidris canutus</i>) [A143] ▪ Sanderling (<i>Calidris alba</i>) [A144] ▪ Dunlin (<i>Calidris alpina</i>) [A149] ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ▪ Redshank (<i>Tringa totanus</i>) [A162] ▪ Black-headed Gull (<i>Croicocephalus ridibundus</i>) [A179] ▪ Roseate Tern (<i>Sterna dougallii</i>) [A192] ▪ Common Tern (<i>Sterna hirundo</i>) [A193] ▪ Arctic Tern (<i>Sterna paradisaea</i>) [A194] ▪ Wetlands [A999] 	c. 10.8 km southeast	No. The European site does not have direct hydrological connectivity with the study area. Furthermore, the study area does not hold suitable wetland features to support such SCIs. Thus, the designated site is not considered to be at risk from the proposed development.
Malahide Estuary (Broadmeadow/ Swords Estuary) SPA (004025)	<p>Conservation Objectives Specific Version 1.0 (16/08/13)</p> <p>Qualifying Interests</p> <ul style="list-style-type: none"> ▪ Great Crested Grebe (<i>Podiceps cristatus</i>) [A005] ▪ Brent Goose (<i>Branta bernicla hrota</i>) [A046] 	c. 10.2 km northeast	Yes. The European site is located downstream of the study area, with

Site Name and Code	Qualifying Interest Habitats and Species (*=Priority Habitat)	Distance from the Proposed Development ⁹	Connectivity
	<ul style="list-style-type: none"> ▪ Shelduck (<i>Tadorna tadorna</i>) [A048] ▪ Pintail (<i>Anas acuta</i>) [A054] ▪ Goldeneye (<i>Bucephala clangula</i>) [A067] ▪ Red-breasted Merganser (<i>Mergus serrator</i>) [A069] ▪ Oystercatcher (<i>Haematopus ostralegus</i>) [A130] ▪ Golden Plover (<i>Pluvialis apricaria</i>) [A140] ▪ Grey Plover (<i>Pluvialis squatarola</i>) [A141] ▪ Knot (<i>Calidris canutus</i>) [A143] ▪ Dunlin (<i>Calidris alpina alpina</i>) [A149] ▪ Black-tailed Godwit (<i>Limosa limosa</i>) [A156] ▪ Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] ▪ Redshank (<i>Tringa totanus</i>) [A162] ▪ Wetlands [A999] 		<p>direct hydrological connectivity through the Shallon stream.</p>

** The NPWS note that for the purposes of Appropriate Assessment, that no assessment is required for *Spartina* swards (*Spartinion maritimae*) [1320] as it is considered, in Ireland, to be an alien species.

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4.3 HABITATS AND FLORA

4.3.1 Terrestrial

None of the terrestrial habitats overlapping or within the ZoI of the proposed development are QIs of European sites. Terrestrial QI habitats of the Rogerstown Estuary SAC, including shifting dunes (2120) and fixed dunes (2130) (a priority habitat¹⁰) are outside the ZoI of the proposed development (NPWS, 2013d).

4.3.2 Aquatic

The proposed development site is located within the Nanny-Delvin WFD Catchment Management Unit. Analysis of the EPA online mapper¹¹ identified the Shallon stream as the only surface watercourse within the ZoI of the proposed development. The Shallon stream adjoins the northern boundary of the proposed development, and flows northeast into the River Ward. The River Ward flows west, and into the River Broadmeadow, before discharging into the Malahide Estuary, c. 10 km downstream from the proposed development.

The upper reaches of the Shallon stream are heavily modified, including culverted waterbody sections under the Cherryhound Tyrellstown Link Road and M2. The river waterbody WFD status (2010-2015) for the Shallon stream and upper River Ward (WARD_30) is 'good'. This status changes to 'poor' for the lower River Ward (WARD_040) and River Broadmeadow (BROADMEADOW_040).

The proposed development site is located near the southern boundary of the Swords groundwater body (IE_EA_G_011). The Swords groundwater body mostly lies within a locally important aquifer, moderately productive but there are smaller areas of unproductive aquifer. The groundwater flow direction is generally towards the coast or neighbouring surface water bodies. The discharge distances are generally of less than 1 km given the fissured nature of the bedrock and it's generally of moderate permeability¹².

Bay Lane Quarry lies within Hydrometric Area HA 09 (Liffey-Dublin Bay). Originally, the surface water drainage from the proposed development site discharged into the Shallon stream and associated drainage ditches under Local Authority (FCC) permit.

Field surveys recorded no aquatic habitats within the footprint or ZoI of the proposed development which have affinity to QI habitats or offer any significant supporting value to QIs or SCIs of any European sites.

4.3.3 Flora and Invasive Alien Plants

The field survey recorded no evidence or potential for QI flora, including Killarney fern *Trichomanes speciosum*, marsh saxifrage *Saxifraga hirculus*, slender naiad *Najas flexilis*, slender green feather moss *Hamatocaulis vernicosus*, or petalwort *Petalophyllum ralfsii*. None of these species were

¹⁰ i.e. habitat types in danger of disappearance and whose natural range mainly falls within the territory of the European Union (EC, 2013).

¹¹ Available online at <https://gis.epa.ie/EPAMaps/>. Accessed March 2019.

¹² Available online at https://jetstream.gsi.ie/iwdds/delivery/GSI_Transfer/Groundwater/GWB/SwordsGWB.pdf. Accessed January 2019

returned from the desk study data search, and the proposed development is outside the favourable reference range of all these species (NPWS, 2013c).

No third schedule species were returned from the data search or recorded during the ecological field surveys. It is our understanding that there is no potential for invasive alien plants, scheduled to the European Communities (Bird and Natural Habitat Regulations) 2011-2015, to be present within the footprint or Zol of the proposed development.

4.4 MOBILE SPECIES

4.4.1 Qualifying Interest

4.4.1.1 QI Mammals

Evidence of European otter *Lutra lutra* was not forthcoming during the survey and no holts were identified. Accessible sections of the drainage ditch along the southern and eastern perimeter and the Shallon stream were walked and although small holes in bankface or gaps under overhanging trees was noted, they were typically small in nature and likely only suitable for small rodents. The nature and quality of water features around the periphery of the site was such that aquatic resources were poor, making the area sub-optimal for otter occupancy.

The quarry floor had areas of shallow standing water in October 2018, which became completely inundated by December 2018 with no bare ground in the quarry void other than the tops of some remnant spoil heaps. There is little obvious flow in the water other than seepage/drainage from rock faces.

During the vantage point surveys for birds, holes in the rock face above the waterline were visually examined, using binoculars, with no resulting evidence of otter activity in the deeper water, or from the potential holes.

The artificial nature of these habitats in the quarry void, coupled with the relative lack of permanent water to support aquatic organisms, which otter may prey upon, in the Shallon stream and associated drainage ditches, suggests that otter are not residing in the proposed development site.

The proposed development is outside the favourable reference range of the lesser horseshoe bat *Rhinolophus hipposideros* (NPWS, 2013c), which is the only bat species designated as a QI in Ireland. The species is restricted to the western Atlantic seaboard and has never been recorded in Co. Dublin or Meath.

4.4.1.2 QI Fish

The proposed development is within the favourable reference range of QI Atlantic salmon *Salmo salar*, QI river lamprey *Lampetra fluviatilis*, and QI brook lamprey *Lampetra planeri* (NPWS, 2013c), QI sea lamprey *Petromyzon marinus*. In addition, the proposed development is outside the favourable reference range QI Killarney shad *Alosa fallax killarnensis* and QI twaite shad *Alosa fallax fallax* (NPWS, 2013c).

4.4.1.3 QI Invertebrates and Amphibians

The proposed development is outside the favourable reference range (NPWS, 2013c) and potential foraging range (i.e. 10 km; Zimmerman *et al.*, 2011) of QI marsh fritillary *Euphydryas aurinia*. The favourable reference ranges of all QI whorl snails are outside the ZoI of the proposed development (NPWS, 2013c).

The proposed development is outside the favourable reference range of both QI freshwater pearl mussel *Margaritifera margaritifera* and QI Irish freshwater pearl mussel *Margaritifera durrovensis* (NPWS, 2013c), and is not within any *Margaritifera* Sensitive Area (O'Connor, 2017) or within the same Catchment Management Unit as any *Margaritifera* SAC catchment¹³.

The proposed development is also outside the favourable reference range of QI white-clawed crayfish *Austropotamobius pallipes*, QI Kerry slug *Geomalacus maculosus*) and QI natterjack toad *Bufo calamita* (NPWS, 2013c).

4.4.2 Special Conservation Interest

The desk study data search indicated that there is potential for a large number of common bird species to use the proposed development site as breeding or feeding habitat. This was confirmed during the 2018 breeding bird survey, and incidental records from ecology walkovers, which recorded 19 bird species. These records included three SCI birds: lesser black-backed gull *Larus fuscus*, herring gull *Larus argentatus* and peregrine falcon *Falco peregrinus*, which were recorded overflying or landing within the proposed development site.

Lesser black-backed gull and herring gull were generally noted overflying, but not landing within the footprint or ZoI of the proposed development site, although 27 gulls mostly Herring and Lesser black-backed gull were noted resting on the uncovered gravel spoil heaps in the centre of the quarry void. Lesser black-backed gull are SCI birds of the Lambay Island SPA (site code 4069), located c. 22 km northeast of the proposed development. Herring gull are SCI birds of the Ireland's Eye SPA (site code 4117), located c. 18.4 km east of the proposed development.

Up to five peregrine falcons were seen overflying or circling the proposed development site during field surveys. A young peregrine was photographed, during a vantage point survey in autumn 2018; perching on a shallow-sloped rock face ledge, c. 3 m below the original ground level, near the northwest corner of the existing pit. Further examination of the ledge from atop noted faecal staining and some down.

Although nesting peregrine falcons are expected to occur in suitable quarries along the eastern seaboard, there are no records of known breeding from within the proposed development site based on field surveys (two visits in March) and through consultation with the Irish Raptor Study Group (IRSG). In winter they occupy area where they do not breed, often frequenting areas with large concentrations of prey (IRSG consultation).

¹³ Catchments of *Margaritifera* SAC populations listed in S.I. 296 of 2009.

Peregrine are known to be established and breeding at two quarry/excavated pit sites within FCC: Roadstone Huntstown (IRSG consultation) and IMS Hollywood (RPS, 2019c), located c. 2 km southeast and c. 15.6 km northeast from the proposed development site, respectively.

The nearest European site designated for SCI peregrine falcon is Wicklow Mountains SPA (site code 4040), located c. 21 km south of the proposed development. Core Peregrine foraging ranges during breeding are estimated to be c. 2 km (maximum c. 18 km) in Britain (SHN, 2016); with reported pair density between 1.47 (Wicklow, Ireland) to 4.47 (Cumbria, England) per 100 km² (Burke *et al.*, 2015).

The site was visited in January by a raptor specialist (RPS Senior Ecologist Mr Adam McClure), and based on the visit, it was considered that:

- the proximity of Huntstown quarry, where Peregrine are known to occur, suggests that the presence within the proposed development site is typical; and,
- although peregrine were clearly active in the area, the quarry itself has features (by virtue of the height and orientation of the rock face, the potential ease of predation from fox, and the proximity to known nesting territory Huntstown quarry) that make the site unsuitable for nesting peregrine.

Five unidentified geese were noted overflying the site from east to west at the commencement of a dusk newt survey. Although it cannot be ruled out that these were light-bellied Brent geese *Branta bernicla hrota*, a SCI bird of Malahide SPA, the geese did not land within the ZOI of the proposed development. Given the nature of the fluctuating artificial waterbody, there is a lack of food source for wildfowl. There is potential for temporary occupation during passage to other sites. However, no wintering wildfowl or SCI species from the Malahide Estuary SPA were noted using the proposed development site during any field survey.

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5 APPROPRIATE ASSESSMENT – STAGE 1: SCREENING

5.1 SCREENING FOR APPROPRIATE ASSESSMENT

Under Section 177U (1) of the Planning Acts, a Screening for AA of the proposed development shall be carried out by the competent authority (in this case, FCC) to assess in view of best scientific knowledge, if that proposed development, individually or in combination with other plans or projects, is likely to have a significant effect(s) on any European sites.

In order to comply with the requirements of Article 6(3) of the EU Habitats Directive, the process of Screening for AA was undertaken for the proposed development. The Screening for AA (RPS, 2019b) assessed the potential for the project to result in likely significant effects on any European sites, either alone or in combination with other plans or projects. A standalone AA Screening Report has been included in the planning application document submitted for this application.

5.2 POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

When considering whether a European site can be screened out, the competent authority cannot take into account any measures intended to avoid or reduce the harmful effects of the proposed development (i.e. mitigation measures)¹⁴; however, a 2019 Irish High Court consideration¹⁵ concluded that Sustainable Drainage Systems (SuDS) are “as a matter of fact and law... not mitigation measures which a competent authority is precluded from considering at the stage 1 screening stage”.

The report to inform screening for AA (RPS, 2019b) identified the potential for LSE to the Malahide Estuary SAC and the Malahide Estuary SPA, resulting from:

- Surface water pollution; and
- Spread of scheduled invasive plants.

5.3 SCREENING FOR APPROPRIATE ASSESSMENT CONCLUSION

Through an assessment of the source-pathway-receptor model, which considered the Zol of effects from the proposed development and the potential in-combination effects with other plans or projects, the following findings were reported in by RPS (2019b):

- In the absence of mitigation measures to control surface water pollution during construction and operation of the proposed development, the potential for LSEs to the Malahide Estuary SAC and the Malahide Estuary SPA cannot be ruled out; and
- In the absence of mitigation measures to control scheduled invasive alien plant species during construction and operation of the proposed development, the potential for LSEs to the Malahide Estuary SAC and the Malahide Estuary SPA cannot be ruled out.

¹⁴ People Over Wind v Coillte Teoranta (Court of Justice of the EU, case C-323/17)

¹⁵ Kelly v An Bord Pleanála & anor [2019] IEHC 84 (High Court)

It was concluded that the potential for likely significant effects on Malahide Estuary SAC and Malahide Estuary SPA from the proposed development was present; therefore, the AA process should proceed to the preparation of a NIS.

For the purposes of this NIS, RPS has assumed that FCC would agree that the proposed development 'Screens in' to the requirement for AA; although it is ultimately the responsibility of the competent authority to make the final determination.

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6 APPROPRIATE ASSESSMENT – STAGE 2: NATURA IMPACT STATEMENT

The requirement to carry out a NIS followed on from the conclusion arrived at during the Screening process (See **Section 5** and RPS, 2019b). In order to determine if the identified source-pathway-receptor linkages could give rise to Likely Significant Effects (LSEs), the following steps are taken:

1. Identification of the information required, including the proposed development, linkages to European sites, and description of relevant European sites;
2. Examination of the site-specific conservation objectives and attributes of QIs/SCIs of relevant European sites; and
3. Prediction of any LSEs of the proposed development, including in-combination effects.

6.1 REQUIRED INFORMATION

6.1.1 Proposed Development

The proposed development has been described in detail in **Section 2** of this report.

6.1.2 Linkages to European Sites

The connectivity between the proposed development and all European sites has been assessed. The Malahide Estuary SAC and the Malahide Estuary SPA (sometimes referred to as the Broadmeadow/Swords Estuary SPA) have been identified as relevant European sites for this NIS. The source-pathway-receptor model for the proposed development is detailed in **Table 6.1**. Only relevant identified effects are brought forward to the next part of the NIS assessment.

The Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the Malahide Estuary SAC/SPA are described, with regard to source-pathway-receptor link(s) within the ZoI of LSE of the proposed development, in **Section 6.1.3** and **Table 6.3**. QIs and SCIs with identified source-pathway-receptor link(s) are carried forward for further assessment; while QIs and SCIs with no identified source-pathway-receptor link(s) are not assessed further in this NIS.

Table 6.1: Source-Pathway-Receptor Model for the Proposed Development

Phase	Source of Potential Effect	Description of Effect Pathway	Potential Zone of Influence of Effect	Potential Relevance of Effect to AA
Construction	Noise, vibration, lighting and human presence during movements of vehicles and staff associated with construction activities.	During construction, noise or other construction-related disturbance could reduce the ability of populations of Qualifying Interest/Special Conservation Interest species to forage, roost or breed.	Varies by species. Generally assessed within 500 m of the proposed development footprint for wintering birds (see Madsen, 1985; Smit & Visser, 1993; and Rees <i>et al.</i> , 2005). However, distance can be significantly lower (e.g. 150 m for otter underground sites (NRA, 2006)), or higher (e.g. hen harriers may take flight when nesting at up to 750 m from disturbance (Whitfield <i>et al.</i> , 2008)).	Not relevant. No Qualifying Interest(s)/Special Conservation Interest(s) of relevant European sites were identified within the Zone of Influence of noise, vibration, lighting and human presence during the construction of the proposed development.
	Surface water run-off carrying suspended silt or contaminants into local watercourses.	Silt, hydrocarbons, and/or other contaminants (oils, fuels, etc.) may enter nearby watercourses through surface water run-off.	The Zone of Influence of effects from contaminated surface water is difficult to accurately estimate as it will depend on numerous factors including the type and concentration of pollutants, assimilative capacity of receiving waters, and time of year (related to water levels). As a precautionary measure, a reasonable worst-case Zone of Influence for water pollution from the proposed development site is considered to be the downstream surface water catchment. In this NIS the surface water catchment is defined at the scale of Catchment Management Unit (CMU) as adopted in the River Basin Management Plan (RBMP) for Ireland 2018-2021 (DoHPLG, 2018). The open coastlines, where Coastal Waterbodies begin, are considered to fall outside the potential Zone of Influence of significant effects.	Relevant. There is potential for pollution from surface water run-off to effect Qualifying Interest(s)/Special Conservation Interest(s) of relevant European sites during the construction of the proposed development.
	Disturbance of invasive species during the construction of the proposed development.	Construction activities could lead to the dispersal of scheduled invasive species either via machinery, materials, clothing or wild animals.	The Zone of Influence of effects for spread of terrestrial invasive species is difficult to accurately estimate, as plant fragments may be spread on tyre treads to distant unrelated sites. In relation to water-borne spread of vegetation, the Zone of Influence generally is restricted to the surface water Catchment Management Unit.	Relevant. Although no scheduled invasive plants are known to occur within the Zone of Influence of construction activities associated with the proposed development, there is potential for these species to enter the proposed development site via machinery.
	Changes of groundwater quality, yield and/or flow paths associated with earthworks during	Construction activities (e.g. earthworks) could interfere with groundwater quality, yields and/or flow paths, potentially affecting the	The potential Zone of Influence of effects from earthworks to ground water quality, flow or/ or yield is difficult to accurately estimate as it will	Relevant. There is potential for pollution from groundwater to effect Qualifying Interest(s)/Special Conservation Interest(s) of

Phase	Source of Potential Effect	Description of Effect Pathway	Potential Zone of Influence of Effect	Potential Relevance of Effect to AA
	construction.	water quality or habitats dependent on groundwater supply.	depend on factors including the depth and intrusion of excavations, and time of year (related to water levels). As a precautionary measure, a reasonable worst-case spatial Zone of Influence is considered to be 500 m from the point of excavation; which is a precautionary doubling of the 250 m stated as the potential Zone of Influence from intrusive excavations to sensitive upland peatland sites (SEPA, 2014).	relevant European sites during the construction of the proposed development.
Operation	Noise, vibration, lighting and human presence during movements of vehicles and staff associated with construction activities.	During Operation, noise or other construction-related disturbance could reduce the ability of populations of Qualifying Interest/ Special Conservation Interest species to forage, roost or breed.	Varies by species. Generally assessed within 500 m of the proposed development footprint for wintering birds (see Madsen, 1985; Smit & Visser, 1993; and Rees <i>et al.</i> , 2005). However, distance can be significantly lower (e.g. 150 m for otter underground sites (NRA, 2006)), or higher (e.g. hen harriers may take flight when nesting at up to 750 m from disturbance (Whitfield <i>et al.</i> , 2008)).	Not relevant. No Qualifying Interest(s)/Special Conservation Interest(s) of relevant European sites were identified within the Zone of Influence of noise, vibration, lighting and human presence during the construction of the proposed development.
	Surface water run-off carrying suspended silt or contaminants into local watercourses.	Silt, hydrocarbons, and/or other contaminants (oils, fuels, etc.) may enter nearby watercourses through surface water run-off.	The Zone of Influence of effects from contaminated surface water is difficult to accurately estimate as it will depend on numerous factors including the type and concentration of pollutants, assimilative capacity of receiving waters, and time of year (related to water levels). As a precautionary measure, a reasonable worst-case Zone of Influence for water pollution from the proposed development site is considered to be the downstream surface water catchment. In this NIS the surface water catchment is defined at the scale of Catchment Management Unit (CMU) as adopted in the River Basin Management Plan (RBMP) for Ireland 2018-2021 (DoHPLG, 2018). The open coastlines, where Coastal Waterbodies begin, are considered to fall outside the potential Zone of Influence of significant effects.	Relevant. There is potential for pollution from surface water run-off to effect Qualifying Interest(s)/Special Conservation Interest(s) of relevant European sites during the operation of the proposed development.
	Disturbance of invasive species during the construction of the proposed development.	Operational activities could lead to the dispersal of scheduled invasive species either via machinery, materials, clothing or wild animals.	The Zone of Influence of effects for spread of terrestrial invasive species is difficult to accurately estimate, as plant fragments may be spread on tyre treads to distant unrelated sites.	Relevant. Although no scheduled invasive plants are known to occur within the Zone of Influence of operation activities associated with the proposed development, there is potential

Phase	Source of Potential Effect	Description of Effect Pathway	Potential Zone of Influence of Effect	Potential Relevance of Effect to AA
	Changes to groundwater quality, yield and/or flow paths associated with earthworks during operation.	Operational activities (e.g. earthworks and infilling) could interfere with groundwater flow paths, potentially affecting the quality or distribution of habitats dependent on groundwater supply.	<p>In relation to water-borne spread of vegetation, the Zone of Influence generally is restricted to the surface water Catchment Management Unit.</p> <p>The potential Zone of Influence of effects from earthworks to ground water quality, flow or/or yield is difficult to accurately estimate as it will depend on factors including the depth and intrusion of excavations, and time of year (related to water levels). As a precautionary measure, a reasonable worst-case spatial Zone of Influence is considered to be 500 m from the point of excavation; which is a precautionary doubling of the 250 m stated as the potential Zone of Influence from intrusive excavations to sensitive upland peatland sites (SEPA, 2014).</p>	<p>for these species to enter the proposed development site and become established via landfill material and/or machinery.</p> <p>Relevant. There is potential for pollution from groundwater to effect Qualifying Interest(s)/Special Conservation Interest(s) of relevant European sites during the operation of the proposed development.</p>

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Table 6.2: Proposed Development Links with Malahide Estuary SAC

Qualifying Interest (*Priority Habitat)	Relevance to the Zone of Influence of Likely Significant Effects of the Proposed Development	Source-Pathway-Receptor link(s)
Mudflats and sandflats not covered by seawater at low tide [1140]	Mudflat and sandflat habitat has been mapped, and was identified c. 10.2 km downstream of the proposed development (NPWS, 2013e).	Link(s) Identified. There is potential for Mudflats and sandflats, downstream of the proposed development, to be affected by silt, oils, grit, or other potential contaminants generated during the construction of proposed development.
<i>Salicornia</i> and other annuals colonising mud and sand [1310]	<i>Salicornia</i> and other colonising mud and sand habitat has been mapped and was identified c. 13.6 km downstream of the proposed development (NPWS, 2013d).	Link(s) Identified. There is potential for <i>Salicornia</i> and other annuals colonising mud and sand, downstream of the proposed development, to be affected by silt, oils, grit, or other potential contaminants generated during the construction of proposed development.
<i>Spartina</i> swards (<i>Spartinin maritimae</i>) [1320]	<i>Spartina</i> swards (<i>Spartinin maritimae</i>) was originally listed as a qualifying Annex I habitat for Malahide Estuary SAC due to historical records of two rare forms of cordgrass—small cordgrass (<i>Spartina maritima</i>) and Townsend's cordgrass (<i>S. x townsendii</i>). However, Preston <i>et al.</i> (2002) considers both forms to be alien. In addition, all stands of cordgrass in Ireland are now regarded as common cordgrass (<i>S. anglica</i>) (McCorry <i>et al.</i> , 2003; McCorry and Ryle, 2009). As a consequence, a conservation objective has not been prepared for this habitat. It will therefore not be necessary to assess the likely effects of plans or projects against this Annex I habitat at this site.	
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Atlantic salt meadow habitat has been mapped and was identified c. 10.2 km downstream of the proposed development (NPWS, 2013d).	Link(s) Identified. There is potential for Atlantic salt meadow, downstream of the proposed development, to be affected by silt, oils, grit, or other potential contaminants generated during the construction of proposed development.
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Mediterranean salt meadow habitat has been mapped and was identified c. 14.7 km downstream of the proposed development (NPWS, 2013d).	Link(s) Identified. There is potential for Mediterranean salt meadows, downstream of the proposed development, to be affected by silt, oils, grit, or other potential contaminants generated during the construction of proposed development.
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]	Shifting dunes habitat has been mapped and was identified c. 13.5 km downstream of the proposed development (NPWS, 2013d).	No link(s) identified.
Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]*	Fixed coastal dunes habitat has been mapped and was identified c. 13.5 km downstream of the proposed development (NPWS, 2013d).	No link(s) identified.

Table 6.3: Proposed Development Link(s) with Malahide Estuary SPA

Special Conservation Interest	Relevance to the Zone of Influence of Likely Significant Effects of the Proposed Development	Source-Pathway-Receptor link(s)
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Shelduck (<i>Tadorna tadorna</i>) [A048]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Pintail (<i>Anas acuta</i>) [054]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Goldeneye (<i>Bucephala clangula</i>) [A067]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Knot (<i>Calidris canutus</i>) [A143]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.

Special Conservation Interest	Relevance to the Zone of Influence of Likely Significant Effects of the Proposed Development	Source-Pathway-Receptor link(s)
Dunlin (<i>Calidris alpina</i>) [A149]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Redshank (<i>Tringa totanus</i>) [A162]	Roosting habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013f).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing prey availability.
Wetland [A999]	Habitat has been identified within the Zone of Influence of Likely Significant Effects of the proposed development (NPWS, 2013g).	Link(s) Identified. There is potential for contaminants generated during the proposed development to be carried into local surface waters, and enter the Malahide Estuary, thereby potentially reducing habitat quality.

The NPWS Natura 2000 data form, dated September 2017, provides status assessments for QIs of the Malahide Estuary SAC (NPWS, 2017a). For each relevant QI of the Malahide Estuary SAC, the site-level and national conservation status, and the site-level and national treats are detailed in **Table 6.4**.

Table 6.4: Conservation Status and Threats to Relevant QIs of Malahide Estuary SAC

Relevant Qualifying Interest*	Site-Level Conservation Status (NPWS, 2017a)	National Conservation Status (and Trend) (NPWS, 2013b)	Primary Site-level Threats from the Proposed Development (Professional Judgement Applied to NPWS, 2017a)	Other National Threats from NPWS (2013a,b)
Mudflats and sandflats not covered by seawater at low tide [1140]	Good	Inadequate (improving)	-Invasive non-native species (I01)	Pollution and fishing/aquaculture and diverse use of the foreshore are likely to affect habitat quality especially eelgrass beds.
<i>Salicornia</i> and other annuals colonising mud and sand [1310]	Good	Inadequate (declining)	-Invasive non-native species (I01)	Invasion of the on-going spread of common cordgrass.
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Good	Inadequate (stable)	-Invasive non-native species (I01)	Ecologically unsuitable grazing levels

Relevant Qualifying Interest*	Site-Level Conservation Status (NPWS, 2017a)	National Conservation Status (and Trend) (NPWS, 2013b)	Primary Site-level Threats from the Proposed Development (Professional Judgement Applied to NPWS, 2017a)	Other National Threats from NPWS (2013a,b)
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Average or reduced	Inadequate (stable)	-Invasive non-native species (I01)	Ecologically unsuitable grazing levels

The NPWS Natura 2000 data form, dated September 2017, provides status assessments for QIs of the Malahide Estuary SPA (NPWS, 2017b). For each relevant SCI of the Malahide Estuary SPA, the site-level conservation status, short and long term population trends, and the site-level and international treats are detailed in **Table 6.5**.

Table 6.5: Conservation Status, Population Trends, and Threats to Relevant SCIs of Malahide Estuary SPA

Relevant Special Conservation Interest	Site-Level Conservation Condition (NPWS, 2017b)	'Short-Term' Site Population trend* (NPWS, 2013f)	'Long-Term' Site Population trend** (NPWS, 2013f)	Primary Site-level Threats from the Proposed Development (Professional Judgement Applied to NPWS, 2017b)	Other threats identified by BirdLife International ¹⁶
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Good	Increasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Hunting for food and the plume trade has previously been a significant threat however, it no longer occurs at significant levels.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Excellent	Decreasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Hunting, disturbance from vehicles, future reduction in food supply and predation.
Shelduck (<i>Tadorna tadorna</i>) [A048]	Excellent	Decreasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Habitat loss, predation from American mink (<i>Neovison vison</i>), avian influenza, hunted for commercial and recreational purposes
Pintail (<i>Anas acuta</i>) [A054]	Excellent	Decreasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Wetland habitat loss on its breeding and wintering grounds, reclamation of coastal areas for industrial development poses a threat in Europe, Over-exploitation is a concern in Europe.
Goldeneye (<i>Bucephala clangula</i>) [A067]	Excellent	Increasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	The main threat to the species in its wintering range is pollution.
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	Excellent	Increasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	The species is subject to persecution and may be shot by anglers and fish-farmers who perceive it as a competitor and accuse it of

¹⁶ BirdLife International Data Zone. Available online at <http://datazone.birdlife.org/species/search>. Accessed March 2019.

Relevant Special Conservation Interest	Site-Level Conservation Condition (NPWS, 2017b)	'Short-Term' Site Population trend* (NPWS, 2013f)	'Long-Term' Site Population trend** (NPWS, 2013f)	Primary Site-level Threats from the Proposed Development (Professional Judgement Applied to NPWS, 2017b)	Other threats identified by BirdLife International ¹⁶
					depleting their fish stocks. The species is susceptible to avian influenza and may be threatened by future outbreaks of the virus
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Excellent	Increasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Over-fishing, bait digging, habitat degradation, pollution, human disturbance, coastal development, Intensive agriculture, fertiliser and pesticide use, and sea-level rise.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Good	Decreasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Climate change, disturbance from recreational activities, intertidal oyster culture and urban and industrial development.
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Excellent	Increasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Climate change, disturbance from recreational activities, intertidal oyster culture and urban and industrial development.
Knot (<i>Calidris canutus</i>) [A143]	Excellent	Increasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Land reclamation, urban, industrial and agricultural expansion, Damming of rivers, dredging, pollution, aquaculture operations, renewable energy developments, oil exploration and invasion of mudflats by <i>Spartina</i> grasses, tourism, flying aircraft, hunted, avian influenza, fishing nets.
Dunlin (<i>Calidris alpina</i>) [A149]	Excellent	Decreasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Afforestation of moorland, nest predation, habitat change, invasion of alien plant species, intertidal mudflats from construction work, petroleum pollution, wetland drainage for irrigation, peat-extraction, reedbed mowing and burning, and abandonment and changing land management practices and avian influenza
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Excellent	Decreasing	Decreasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Wetland drainage and agricultural intensification, habitat loss, climate change, predation, grazing, heavy traffic, pollution, human disturbance, habitat reclamation for tidal energy plants, aquaculture ponds, land conversion for agriculture, urban expansion and agricultural

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Relevant Special Conservation Interest	Site-Level Conservation Condition (NPWS, 2017b)	'Short-Term' Site Population trend* (NPWS, 2013f)	'Long-Term' Site Population trend** (NPWS, 2013f)	Primary Site-level Threats from the Proposed Development (Professional Judgement Applied to NPWS, 2017b)	Other threats identified by BirdLife International ¹⁶
					intensification at rice paddies.
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Good	Increasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Oil and gas exploration and associated infrastructure development, legal subsistence harvesting and illegal hunting, and increases in predator numbers.
Redshank (<i>Tringa totanus</i>) [A162]	Excellent	Decreasing	Increasing	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Agricultural intensification, wetland drainage, flood control, afforestation, land reclamation, industrial development, encroachment of <i>Spartina</i> spp. on mudflats, improvement of marginal grasslands, disturbance on intertidal mudflats from construction work, predation and avian influenza
Wetland [A999]	na	na	na	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	na

Table Footnotes
 * Site population trend analysis: 5 yr = 2004/05 – 2009/10.
 ** Site population trend analysis: 14 yr = 1995/96 – 2009/10.

6.1.3 Brief Description of European Sites within the ZOI

There are two European sites within the ZOI of the proposed development: Malahide Estuary SAC and the Malahide Estuary SPA. A pollution effect pathway was identified between the proposed development and these two European sites, which are the only European sites downstream of the proposed development.

No effect pathways have been identified between the proposed development and more distant European sites, based on the ZOIs identified in **Section 3.4.1**, and the known or potential distribution of mobile QI/SCI features identified in **Section 4**.

6.1.3.1 Malahide Estuary SAC (000205)

The following summary has been taken from the Malahide Estuary SAC site synopsis (NPWS, 2017c):

Malahide Estuary is situated immediately north of Malahide and east of Swords in Co. Dublin. It is the estuary of the River Broadmeadow. The site is divided by a railway viaduct which was built in the 1800s.

The estuary is an important wintering bird site and holds an internationally important population of Brent Goose and nationally important populations of a further 15 species. Average maximum counts during the 1995/96-1997/98 period were: Brent Goose 1217; Great Crested Grebe 52; Mute Swan 106; Shelduck 471; Pochard 200; Goldeneye 333; Red-breasted Merganser 116; Oystercatcher 1228; Golden Plover 2123; Grey Plover 190; Redshank 454; Wigeon 50; Teal 78; Ringed Plover 106; Knot 858; Dunlin 1474; Greenshank 38; Pintail 53; Black-tailed Godwit 345; Bar-tailed Godwit 99. The high numbers of diving birds reflects the lagoon-type nature of the inner estuary.

The estuary also attracts migrant species such as Ruff, Curlew Sandpiper, Spotted Redshank and Little Stint. Breeding birds of the site include Ringed Plover, Shelduck and Mallard. Up to the 1950s there was a major tern colony at the southern end of the island and the habitat remains suitable for these birds.

The inner part of the estuary is heavily used for water sports. A section of the outer estuary has recently been infilled for a marina and housing development. This site is a fine example of an estuarine system with all the main habitats represented. The site is important ornithologically, with a population of Brent Goose of international significance.

6.1.3.2 Malahide Estuary SPA (004025)

The following summary has been taken from the Malahide Estuary SCA site synopsis (NPWS, 2013h):

Malahide Estuary is situated in north Co. Dublin, between the towns of Malahide and Swords. The site encompasses the estuary, saltmarsh habitats and shallow subtidal areas at the mouth of the estuary. A railway viaduct, built in the 1800s, crosses the site and has led to the inner estuary becoming lagoonal in character and only partly tidal. Much of the outer part of the estuary is well-sheltered from the sea by a large sand spit, known as "The Island". This spit is now mostly converted to golf-course. The outer part empties almost completely at low tide and there are extensive intertidal flats exposed.

Malahide Estuary SPA is a fine example of an estuarine system, providing both feeding and roosting areas for a range of wintering waterfowl. The lagoonal nature of the inner estuary is of particular value as it increases the diversity of birds which occur. The site is of high conservation importance, with internationally important populations of Light-bellied Brent Goose and Black-tailed Godwit, and nationally important populations of a further 12 species. Two of the species which occur regularly (Golden Plover and Bar-tailed Godwit) are listed on Annex I of the E.U. Birds Directive. Malahide Estuary (also known as Broadmeadow Estuary) is a Ramsar Convention site.

6.2 CONSERVATION OBJECTIVES

6.2.1 Malahide Estuary SAC

Site specific Conservation Objectives for the Malahide Estuary SAC are available (NPWS, 2013i). **Table 6.6** identifies the Conservation Objective attributes which could be adversely affected by the proposed development, for 'relevant' QIs scoped into the assessment.

6.2.2 Malahide Estuary SPA

Site specific Conservation Objectives for the Malahide Estuary SPA are available (NPWS, 2013g).

Table 6.7 identifies the Conservation Objective attributes which could be adversely affected by the proposed development, for ‘relevant’ SCIs scoped into the assessment.

Table 6.6: Conservation Objective Attributes for the Malahide Estuary SAC

Relevant Qualifying Interests	Site Specific Conservation Objective (NPWS, 2013i; Version 1; 27/05/2013)	Site Specific Attributes Potentially Affected by the Proposed Development (NPWS, 2013i; Version 1; 27/05/2013)
Mudflats and sandflats not covered by seawater at low tide [1140]	To maintain the favourable conservation condition	Habitat area Community extent Community structure – <i>Zostera</i> density & <i>Mytilus edulis</i> density Community distribution
<i>Salicornia</i> and other annuals colonising mud and sand [1310]	To maintain the favourable conservation condition	Habitat area Habitat distribution Physical structure – Sediment supply, Creeks and Pans, Flooding regime Vegetation structure – Zonation, height & cover, Negative indicator species (<i>Spartina anglica</i>) Vegetation composition -typical species
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	To restore the favourable conservation condition	Habitat area Habitat distribution Physical structure – Sediment supply, Creeks and Pans, Flooding regime Vegetation structure – Zonation, height & cover, Negative indicator species (<i>Spartina anglica</i>) Vegetation composition -typical species
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	To maintain the favourable conservation condition	Habitat area Habitat distribution Physical structure – Sediment supply, Creeks and Pans, Flooding regime Vegetation structure – Zonation, height & cover, Negative indicator species (<i>Spartina anglica</i>) Vegetation composition -typical species

Table 6.7: Conservation Objective Attributes for the Malahide Estuary SPA

Relevant Special Conservation Interests	Site Specific Conservation Objective (NPWs, 2013g; Version 1; 16/08/2013)	Site Specific Attributes Potentially Affected by the Proposed Development (NPWs, 2013g; Version 1)
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	To maintain the favourable conservation condition	Population trend Distribution
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	To maintain the favourable conservation condition	Population trend Distribution
Shelduck (<i>Tadorna tadorna</i>) [A048]	To maintain the favourable conservation condition	Population trend Distribution
Pintail (<i>Anas acuta</i>) [A054]	To maintain the favourable conservation condition	Population trend Distribution
Goldeneye (<i>Bucephala clangula</i>) [A067]	To maintain the favourable conservation condition	Population trend Distribution

Relevant Special Conservation Interests	Site Specific Conservation Objective (NPWs, 2013g; Version 1; 16/08/2013)	Site Specific Attributes Potentially Affected by the Proposed Development (NPWs, 2013g; Version 1)
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	To maintain the favourable conservation condition	Population trend Distribution
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	To maintain the favourable conservation condition	Population trend Distribution
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	To maintain the favourable conservation condition	Population trend Distribution
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	To maintain the favourable conservation condition	Population trend Distribution
Knot (<i>Calidris canutus</i>) [A143]	To maintain the favourable conservation condition	Population trend Distribution
Dunlin (<i>Calidris alpina</i>) [A149]	To maintain the favourable conservation condition	Population trend Distribution
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	To maintain the favourable conservation condition	Population trend Distribution
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	To maintain the favourable conservation condition	Population trend Distribution
Redshank (<i>Tringa totanus</i>) [A162]	To maintain the favourable conservation condition	Population trend Distribution
Wetland [A999]	To maintain the favourable conservation condition	Habitat area

6.3 PREDICTED EFFECTS

The prediction of potential effects from the proposed development (alone) to the integrity of European sites is presented in this Section. Cumulative effects from the proposed development in combination with other plans or projects are presented in **Section 6.3.3**.

6.3.1 Malahide Estuary SAC

The prediction of effects from the proposed development to the integrity (based on QIs) of the Malahide Estuary SAC is set out in **Table 6.8**.

Table 6.8: Prediction of Effects on Site Integrity (Qualifying Interests) in the Malahide Estuary SAC during Construction and Operation

Relevant Qualifying Interest	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Qualifying Interests
Mudflats and sandflats not covered by seawater at low tide [1140]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01)	Habitat area: -None predicted as impact as proposed development avoids activity within the habitat. Community extent, structure, and distribution: -Predicted impacts resulting from surface water pollution and potential invasive species.

Relevant Qualifying Interest	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Qualifying Interests
<i>Salicornia</i> and other annuals colonising mud and sand [1310]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01)	Habitat area: -None predicted as impact as proposed development avoids activity within the habitat. Community extent, structure, and distribution: -Predicted impacts resulting from surface water pollution and potential invasive species.
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01)	Habitat area: -None predicted as impact as proposed development avoids activity within the habitat. Community extent, structure, and distribution: -Predicted impacts resulting from surface water pollution and potential invasive species.
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01)	Habitat area: -None predicted as impact as proposed development avoids activity within the habitat. Community extent, structure, and distribution: -Predicted impacts resulting from surface water pollution and potential invasive species.

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6.3.2 Malahide Estuary SPA

The prediction of effects from the proposed development to the integrity (based on SCIs) of the Malahide Estuary SPA is set out in **Table 6.9**.

Table 6.9: Prediction of Effects on Site Integrity (Special Conservation Interests) in the Malahide Estuary SPA during Construction and Operation

Relevant Special Conservation Interests	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Special Conservation Interests
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting

Relevant Special Conservation Interests	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Special Conservation Interests
			from invasive species effecting habitat, including roosting sites.
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Shelduck (<i>Tadorna tadorna</i>) [A048]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Pintail (<i>Anas acuta</i>) [A054]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Goldeneye (<i>Bucephala clangula</i>) [A067]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting

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Relevant Special Conservation Interests	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Special Conservation Interests
			from invasive species effecting habitat, including roosting sites.
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting

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Relevant Special Conservation Interests	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Special Conservation Interests
			from invasive species effecting habitat, including roosting sites.
Knot (<i>Calidris canutus</i>) [A143]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Dunlin (<i>Calidris alpina</i>) [A149]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	<p>Population trend:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. <p>Distribution:</p> <ul style="list-style-type: none"> -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.

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Relevant Special Conservation Interests	Effect pathway (s)	Relevant Site-level Threat	Predicted Adverse Effect(s) Trigger(s) to relevant Special Conservation Interests
Redshank (<i>Tringa totanus</i>) [A162]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Population trend: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites. Distribution: -Potential impacts resulting from water pollution effecting habitat and food resources. -Potential impacts resulting from invasive species effecting habitat, including roosting sites.
Wetland [A999]	Surface water and groundwater pollution Dispersal of scheduled invasive species	-Invasive non-native species (I01) -Industrial or commercial areas (E02)	Habitat area: -Potential impacts resulting from water pollution effecting habitat. -Potential impacts resulting from invasive species effecting habitat.

6.3.3 In-combination Effects

Legislation, guidance and case law requires that in-combination effects with other plans or projects are considered. On this basis, a range of other plans and projects were considered in terms of their potential to have in-combination effects with the proposed development.

The assessment of in-combination effects has regard for developments potentially affecting the Malahide Estuary SAC and the Malahide Estuary SPA, with which a potential pathway has been identified. The Natura Standard Data Form for Malahide Estuary SAC (NPWS, 2017a) and Malahide Estuary SPA (NPWS, 2017b) identify the most important impacts (high and medium) and activities with high effect on the sites as:

Malahide Estuary SAC:

- J02.01.02 - reclamation of land from sea, estuary or marsh
- A08 - fertilisation
- D01.05 - bridge, viaduct
- G02.01 - golf course
- I01 - invasive non-native species
- E01 - urbanised areas, human habitation
- G01.02 - walking, horseriding and non-motorised vehicles
- D01.02 - roads, motorways

- G01.03 - motorised vehicles
- G01.01 - nautical sports

Malahide Estuary SPA:

- G01.02 - walking, horseriding and non-motorised vehicles
- D01.04 - TGV
- E01 - urbanised areas, human habitation
- I01 - invasive non-native species
- J02.01.02 - reclamation of land from sea, estuary or marsh
- D01.01 - paths, tracks, cycling tracks
- A08 – fertilisation
- D01.05 - bridge, viaduct
- E02 - industrial or commercial areas
- G01.01 - nautical sports

6.3.3.1 Plans

National Development Plan 2018-2027

National Strategic Outcome 9 of the National Development Plan 2018-2027 (Government of Ireland, 2018) details the Sustainable Management of Water and other Environmental Resources. Within this outcome, Waste Management and Resource Efficiency has been identified as an investment action. The action states that:

“Investment in waste management infrastructure is critical to our environmental and economic well-being for a growing population and to achieving circular economy and climate objectives. Capacity will continue to be built in waste facilities, including anaerobic digestion, hazardous waste treatment, plastics processing, recycling, waste to energy, and landfill and landfill remediation, to meet future waste objectives..... Significant infrastructure capacity development will be required to separate and process various waste streams at municipal and national levels to achieve new EU legally-binding targets and the additional investment may include a potential role for public investment.”

The Plan was subject to SEA and Appropriate Assessment and a mitigation measure included an objective (NPO 75) to:

“ensure that all plans, projects and activities requiring consent arising from the National Planning Framework are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate”.

The Fingal County Development Plan 2017-2023

The Fingal County Development Plan 2017-2023 (FCC, 2017a) highlights a number of potential larger infrastructural projects within the county. Within this Plan, the proposed development site is classified as GE – General Employment; a class attributed to providing opportunities for general

enterprise and employment. Two specific objectives are set: Objectives NH51 and NH52. These Objectives state the intention of protecting these areas from inappropriate development and that development reflects and reinforces the distinctiveness of these areas, which provide a higher level of protection against the development of large infrastructural projects/developments.

A NIS has been completed of The Fingal County Development Plan 2017-2023 (FCC, 2017b), which concluded:

“As a result of the assessment process, it is concluded that mitigatory measures identified in the stage 2 Appropriate Assessment are adequate to ensure the integrity of the European Sites which will not be significantly affected as a result of the potential impacts of the objectives contained with the Fingal Development Plan.”

Cherryhound LAP

The proposed soil restoration facility is within the boundary of the Cherryhound Local area Plan 2012-2018 (FCC, 2012) which has been extended to 2022. In keeping with the higher-level County Development Plan, its zonation is for GE – General Employment.

The LAP (as extended) has little detail in respect of specific projects or objectives, although it does recommend that the strong field boundaries and individual freestanding trees should be retained to assist with the structuring of the area. The AA Screening accompanying the LAP concluded that the LAP alone or in combination with others would not have significant effects on Natura sites.

MetroLink

The National Transport Authority commissioned the Fingal/North Dublin Transport Study to identify optimum long-term transport solutions to connect Dublin City Centre, Dublin Airport and Swords. The report was published in 2015 and the commencement of the construction phase is scheduled by 2021, operation by 2026/2027 (NTA, 2015). Although the project is located to the east of the Bay Lane facility nonetheless, it is proposed to cross the Ward River. There is insufficient information publicly available to allow further assessment and confirm potential cumulative impacts, except to say that environmental assessment will be required to consider in combination impacts with other projects. The potential for the development of the Metro North scheme to entail impacts to Biodiversity and European sites will be contemplated within its own Environmental Assessment together with possible cumulative and in-combination impacts.

6.3.3.2 Projects

A search was conducted of planning applications (projects) within the vicinity of the proposed development, using the Fingal County Council planning portal map viewer¹⁷ and the Department of Housing, Planning and Local Government EIA portal map viewer¹⁸. The search was limited to the five year period preceding the date of issue of this report, and excluded retention applications (i.e. typically local-scale residential or commercial developments where an impact has already occurred),

¹⁷ Available online at <http://fingalcoco.maps.arcgis.com/apps/webappviewer/index.html?id=3fa7d9df584c4d93aab202638db9dd1a>. Accessed March 2019.

¹⁸ Available online at <http://housinggovie.maps.arcgis.com/apps/webappviewer/index.html?id=d7d5a3d48f104ecbb206e7e5f84b71f1>. Accessed March 2019.

incomplete, withdrawn, and refused applications. The relevant projects with potentially for in-combination LSEs on European sites, are detailed below.

Fingal Planning Portal

There are a number of commercial and industrial developments in the local area of the Bay Lane Quarry. Some share the same access road as the site including a cement company (Halton Concrete) located 200m to the west of the site and a commercial bus yard (Butlers Bus Tours) located approximately 250m to the east of the site.

There are a large number of residential and commercial planning applications in the planning system throughout Fingal administrative area but only a small number identified in close proximity to proposed development. There is potential for in-combination impacts on water quality in particular if both the proposed development and the planning applications resulted in water pollution of surface or ground waters. Many of these applications have on-site foul effluent treatment systems associated with them. However, due to the measures incorporated into the construction methodology for the proposed soil recovery facility to ensure protection of all waterbodies and water quality, it is not anticipated that the proposed developments will result in any in-combination impacts.

Two current commercial projects are located in close proximity to the proposed development:

- Planning Reference FW17A/0119 – Permitted development after appeal to ABP of Logistics Complex in greenfield site immediately north of proposed Bay Lane Soil recovery facility. The project planning documents included an AA Screening report (Roger Goodwillie & Associates, 2011), and a Landscape and Drainage design (FCC, 2012) to ensure that proposed SUDS drainage features including swales would not be planted to attract birds, and that the road network immediately adjacent to the site entrance be upgraded in advance of proposed development owing to the nature of truck movements on the local road network.
- Planning reference FW19A/0006 – additional information was sought by the Local authority on March 6th for a proposed single storey commercial facility, located c. 200 m northwest of the proposed development. The date for FCC decision is unknown. The AA screening submitted with the planning application (Moore Group Environmental Services, 2016) concluded that there would be no significant direct or indirect impacts on the Malahide Estuary SAC/SPA resulting in the project.

Strategic Infrastructure Development/ Strategic Housing Development

A key SID project is the Irish Water sponsored Greater Dublin Drainage Project (ABP 301908) which consists new wastewater treatment plant, sludge hub centre, orbital sewer, outfall pipeline and regional biosolids storage facility. The project has been subject to detailed environmental Impact assessment and has been subject to NIS, both of which include considerable mitigation measures to protect local biodiversity and aquatic environment and ensure that no adverse effects upon the integrity of European sites is likely. Oral Hearing is due to commence, and it is estimated that a decision will be forthcoming in 28/6/2019. A separate CPO application to ABP (#301807) in respect of the Regional Biosolids Storage Facility Project has been lodged (6/6/2018). Planned construction commencement in 2022 although it would be phased for specific elements. There could be overlap in construction impacts, but it is unlikely to be significant owing to distance between both site and mitigation measures to ensure protection of watercourses.

There are multiple planning and SID applications in respect of Dublin Airport Authority. Current and future developments could have construction and or operation impacts owing to overlap in timing of projects and potential sedimentation to tributaries for the Ward River. However, in combination impacts are considered unlikely to be significant owing to distance between both sites and mitigation measures to ensure protection of watercourses.

No current Strategic Housing Developments, pertinent to the current project, are currently listed on the website of An Bord Pleanála¹⁹.

6.3.3.3 In-combination Conclusion

The key pathway in terms of construction and operational impacts relate to the potential pollution of watercourses, through sedimentation and dispersal of invasive species. No other pathways have been identified by which any plan or project could have a likely significant in-combination effect on European site(s).

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¹⁹ Available online at <http://www.pleanala.ie/shd/applications/CurrentApplications/CurrentApplications7Mar.pdf>. Accessed 15/03/2019

7 MITIGATION MEASURES

For the purposes of this assessment the term “mitigation measures” are considered to be ‘*those measures which aim to minimise, or even cancel, the negative impacts on a site that are likely to arise as a result of the implementation of a plan or project. These measures are an integral part of the specifications of a plan or project*’ (Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC, January 2007).

Based on the Appropriate Assessment carried out in **Section 6**, the mitigation will focus on the following potential pollution pathway:

- Surface water and ground pollution; and
- Scheduled invasive species.

GLV, and any contractor appointed by them, will be required to comply with, and implement, the requirements and mitigation measures as set out here (**Section 7.1**, **Section 7.2** and **Section 7.3**). It is required that these measures be incorporated, in full, into a Construction Management Plan (CMP) (**Section 7.4.1**) and Operation Management System (OMS) (**Section 7.4.2**).

Residual effects of the proposed development, following mitigation measures outlined here, are discussed in **Section 7.5**.

7.1 SURFACE WATER AND GROUNDWATER MANAGEMENT

7.1.1 Construction

The construction works shall be undertaken within a framework of environmental protection practices defined and co-ordinated via a CMP (see **Section 7.4.1**). The CMP shall provide measures that meet legislative requirements, industry best practice and key regulatory guidance that define good working practices during construction, most notably the CIRIA guidance for the ‘Control of Water Pollution from Construction Sites’ (CIRIA, 2001).

During construction, GLV and/or any Contractor appointed by GLV, must ensure that:

- Topsoil when brought onto site shall be:
 - maintained in a tidy condition, separate from general spoil, with side slopes not steeper than 1 in 3;
 - maintained in good condition keeping weeds under control and preventing vermin infestation.
- Stockpiling of any construction materials shall be strictly prohibited within 5m of any ditch or water-laden channel, and appropriate management of excess material stockpiles will be enforced, to prevent siltation of watercourses;
- Excavations shall be left open for minimal periods to avoid acting as a conduit for surface water flows;

- All ready-mixed concrete shall be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite;
- Concrete shall be contained and managed appropriately to prevent pollution of watercourses. Concrete pouring will be prevented during periods of heavy rainfall, and quick setting mixes will be used;
- Waste materials shall be stored in designated areas that are isolated from surface water drains. Skips will be closed or covered to prevent materials being blown or washed away and to reduce the likelihood of contaminated water leakage;
- Temporary construction compounds shall not be located within 20 m of watercourses, or where it is likely that groundwater will be encountered;
- No harmful materials shall be deposited into nearby watercourses, including drainage ditches/pipes, on or adjacent to the site;
- Any dewatering of standing water within the proposed development site (e.g. standing water in the proposed development site) shall require a dewatering plan to be incorporated into the Specified Engineering Works for agreement with the Local Authority and EPA prior to major works on site. The proposed dewatering regime is detailed in Chapter 10 of the EIAR and includes a commitment to Local Authority permitted dewatering the quarry in the void in the first instance, thereafter maintaining a dry site through ongoing dewatering at a rate equivalent to greenfield run-off (to be established and agreed with the Local Authority);
- Protection measures shall be put in place to ensure that all hydrocarbons used during the Construction are appropriately handled, stored and disposed of in accordance with recognised standards. These measures will include:
 - Hazardous materials including diesel, fuel oils, solvents, paints and/or lubricants stored on site will be stored within suitably designed bunded areas with a bund volume of 110% of the capacity of the largest tank/container.
 - Re-fuelling of plant will not occur within 50 m of any watercourse or surface water/groundwater feature. Drip trays will be used and spill kits will be kept available;
 - Machinery used on site will be regularly inspected to ensure there is no leakage from them and to ensure the machinery will not cause contamination of watercourses;
 - Where required, fuel will be transported in a mobile, double skinned tank and a spill tray will be used when refuelling (if taking place outside a compound area);
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling;
 - Only emergency breakdown maintenance will be carried out on site. Emergency procedures and spillage kits will be readily available at strategic site locations and construction staff will be familiar with emergency procedures; and
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, with an appropriate emergent response put in place (**Section 7.3**). Any contaminated soil will be removed from the site and properly disposed of.

7.1.2 Operation

During operation, under any conditions of any EPA Waste Licence, GLV must ensure that:

- Incoming inert waste shall be subject to detailed Waste Acceptance Protocols, which are agreed with the EPA;
- A monitoring schedules, to be agreed with the EPA, will be carried out;
- The monitoring of a new percolation from the foul water treatment (contained treatment plant) to ensure compliance with water quality standards;
- The geo-textile membranes installed at the attenuation pond outfall will be maintained throughout the lifetime of the operation of the proposed development, and will follow the manufacturers' specifications; and
- Protection measures will be put in place to ensure that all hydrocarbons used during the operation are appropriately handled, stored and disposed of in accordance with recognised standards. These measures will include:
 - Hazardous materials including diesel, fuel oils, solvents, paints and/or lubricants stored on site will be stored within suitably designed bunded areas with a bund volume of 110% of the capacity of the largest tank/container.
 - Re-fuelling of plant will not occur within 50 m of any watercourse or surface water/groundwater feature. Drip trays will be used and spill kits will be kept available;
 - Machinery used on site will be regularly inspected to ensure there is no leakage from them and to ensure the machinery will not cause contamination of watercourses;
 - Where required, fuel will be transported in a mobile, double skinned tank and a spill tray will be used when refuelling (if taking place outside a compound area);
 - Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling;
 - Only emergency breakdown maintenance will be carried out on site. Emergency procedures and spillage kits will be readily available at strategic site locations and construction staff will be familiar with emergency procedures; and
 - Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, with an appropriate emergent response put in place (**Section 7.3**). Any contaminated soil will be removed from the site and properly disposed of.

7.2 INVASIVE SPECIES MANAGEMENT

GLV will be accepting soil and stone. It shall be a requirement that all material from originating sites shall be free of third schedule IAPS. Notwithstanding this fact, there is potential during the preparation or operation of the site for IAPS to become established even unwittingly.

The presence of invasive alien plant species has the potential to lead to an offence under the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

Regulation 49 of the 2011 Regulations prohibits (unless under licence) the breeding, release, or allowing or causing the dispersal from confinement of any animal listed in the Third Schedule of the Regulations; or the planting, allowing or causing dispersal, and spreading of any plant listed in the Third Schedule.

It is an offence to plant or encourage the spread of any third schedule invasive species by moving contaminated soil from one place to another, or incorrectly handling and transporting contaminated material or plant cuttings. Persons must therefore take all reasonable steps and exercise due diligence to avoid committing an offence under the 2011 Regulations (as amended).

Although no scheduled invasive plants are known to grow within the proposed development site, there is potential for these species to enter and spread throughout the proposed development site during construction and operation phases.

7.2.1 Construction

Pre-/during construction, GLV and/or any Contractor appointed by GLV, must ensure that:

- A pre-construction survey (carried out by a suitable qualified ecologist/invasive species specialist in the correct botanical season: e.g. April - September) shall be carried out immediately in advance of commencement of operations on site;
- All machinery entering the site during construction activities shall be free from contamination with scheduled invasive plants. This can be achieved through wheel wash stations for vehicles entering and exiting the proposed development site;
- The materials which are introduced to the site during the construction shall be free from scheduled invasive species, with certification of such; and
- Where a scheduled invasive species is accidentally introduced or becomes established within the proposed development site during pre-construction surveys and/or the construction phase, works shall be immediately halted and an effective exclusion zone will be erected (minimum 7 m) until such time that a suitably qualified ecologist/invasive species specialist can assess the site(s), and implement the required management protocol (as set out in the ISMP).

7.2.2 Operation

During operation, GLV and/or any Contractor appointed by GLV, must ensure that:

- An invasive species monitoring survey (carried out by a suitable qualified ecologist/invasive species specialist in the correct botanical season: e.g. April - September) shall be carried out annually for the duration of infilling activities (i.e. c. 15 years) and for a minimum of three years after completion of infilling works. The findings of each survey will be reported to the Local Authority (in this case FCC) and retained for auditing purposes;
- All machinery entering the site during operation activities shall be free from contamination with scheduled invasive plants (excluding licenced loads known to contain Japanese knotweed). This can be achieved through wheel wash stations for vehicles entering and exiting the proposed development site;

- Where a scheduled invasive species is accidentally introduced or becomes established within the proposed development site during operation, or recorded during monitoring surveys, works shall be immediately halted and an effective exclusion zone will be erected (minimum 7 m) until such time that a suitably qualified ecologist/invasive species specialist can assess the site(s), and implement the required management protocol (as set out in the ISMP).

7.3 EMERGENCY RESPONSE AND ENVIRONMENTAL TRAINING

GLV and/or any Contractor appointed by GLV to operate on the site, shall produce an Emergency Response Plan (ERP) which will be included in the CMO/OMP (see **Section 7.4**). The ERP will include:

- The GLV/Contractor's proposed training of relevant staff, including cover staff, in the implementation of the ERP and the use of spill kits;
- A method for which all GLV staff, and/or any Contractor staff appointed by them, will be briefed regarding the biodiversity value of the surrounding landscape, to ensure that there are no accidental or unintentional actions conducted during the project construction/operation that could lead to a reduction in water quality. Such matters often arise accidentally through lack of awareness rather than as a result of an intentional action;
- A method for which all GLV, and/or any Contractor appointed by them, will ensure that all personnel working on site are trained in pollution incident control response. A regular review of weather forecasts of heavy rainfall is required and GLV is required to prepare a contingency plan for before and after such events;
- The details of procedures to be undertaken by GLV /Contractor in the event of the release of any sediment into a watercourse, or any spillage of chemicals, fuel or other hazardous wastes, non-compliance incidents with any permit or licence, or other such risks that could lead to a pollution incident, including flood risks;
- A confirmation of the number and specification of spill kits which shall be carried by the Contractor, as a minimum, readily located at site offices; and
- Information on clean-up procedures to include the following:
 - GLV /Contractor will immediately initiate appropriate clean-up operations and notify any sediment releases, hydrocarbon leakages or spillages during the construction activities to the site manager and environmental team/specialist;
 - GLV /Contractor will contain the bulk of the spill immediately using a spill kit before placing the contaminated absorbent material and the contaminated soil in a stockpile at least 50m from, and downslope of any watercourse; and
 - All contaminated material will be underlain and covered by plastic to prevent leachate generation, until such time as it can be removed off-site by an appropriately licensed waste management company.

7.4 MANAGEMENT PLANS

7.4.1 Construction Management Plan

GLV will create/update a Construction Management Plan (CMP) to manage the environmental mitigation measure outlined in this NIS. The CMP will be agreed with a suitable qualified

ecologist/environmental specialist prior to the commencement of any construction activities. The CMP will remain a 'live' document throughout the duration of the construction activities, to allow for input and updating throughout.

The CMP will incorporate the following measures:

- All construction mitigation measures for surface water and groundwater set out in **Section 7.1.1**;
- All construction mitigation measures for scheduled invasive species set out in **Section 7.2.1**; and
- Emergency response and environmental training set out in **Section 7.3**.

7.4.2 Operation Management Plan

GLV will create an Operation Management Plan (OMP) to manage the environmental mitigation measure outlined in this NIS. The OMP will be agreed with a suitable qualified ecologist/environmental specialist prior to completion of construction activities. The OMP will remain a 'live' document throughout the duration of the operation activities, to allow for input and updating throughout.

The OMP will incorporate the following measures:

- All operation mitigation measures for surface water and groundwater set out in **Section 7.1.2**;
- All operation mitigation measures for scheduled invasive species set out in **Section 7.2.2**; and
- Emergency response and environmental training set out in **Section 7.3**.

7.5 RESIDUAL IMPACTS

Irish Government guidance states that:

"If the competent authority considers that residual adverse effects remain, then the plan or project may not proceed without continuing to stage 3 of the AA process: Alternative Solutions" (DoEHLG, 2010).

Taking into account the mitigation measures identified and set out in this NIS, no residual adverse effects within the ZOI of the proposed development have been identified (**Table 7.1**).

Table 7.1: Identification of Residual Adverse Effects within the Zone of Influence of the Proposed Development

Relevant Qualifying Interests / Special Conservation Interests	Potential Impacts Identified	Potential Cumulative Impacts Identified	Mitigation Proposed	Residual Adverse Effects Identified
Mudflats and sandflats not covered by seawater at low tide [1140]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
<i>Salicornia</i> and other annuals colonising mud and sand [1310]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Shelduck (<i>Tadorna tadorna</i>) [A048]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Pintail (<i>Anas acuta</i>) [A054]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Goldeneye (<i>Bucephala clangula</i>) [A067]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Red-breasted Merganser (<i>Mergus serrator</i>) [A069]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Oystercatcher (<i>Haematopus ostralegus</i>) [A130]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Golden Plover (<i>Pluvialis apricaria</i>) [A140]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Grey Plover (<i>Pluvialis squatarola</i>) [A141]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Knot (<i>Calidris canutus</i>) [A143]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Dunlin (<i>Calidris alpina</i>) [A149]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Black-tailed Godwit (<i>Limosa limosa</i>) [A156]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Redshank (<i>Tringa totanus</i>) [A162]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None
Wetland [A999]	Surface water and groundwater pollution, and dispersal of scheduled invasive species.	None	Yes	None

8 CONCLUSION OF APPROPRIATE ASSESSMENT

This NIS has been prepared following the Department of the Environment, Heritage and Local Government guidance 'Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities' (DoEHLG, 2010). As stated in that guidance document, the requirement of the AA is not to prove what the impacts and effects will be, but rather to establish beyond reasonable scientific doubt that adverse effects on site integrity will not result.

RPS has prepared this NIS to document the analysis and evaluation seeking to establish whether or not, in view of best scientific knowledge and applying the precautionary principle, and in light of the conservation objectives of relevant European sites, the proposed development, either individually or in combination with other plans or projects, will not adversely affect the integrity of European sites

The construction and operation of the proposed development has been detailed (**Section 2**), and the receiving environment has been described (**Section 4**). Malahide estuary SAC and Malahide estuary SPA have been identified with the ZOI of the proposed development (**Section 5**) via the following effect pathways (**Section 6**):

- Surface water and groundwater pollution; and
- Dispersal of scheduled invasive species.

To minimise, or even cancel, the negative impacts on a European site that are likely to arise as a result of the proposed development, mitigation measures were recommended (**Section 7**). These mitigation measures provide recommendations for surface water and ground water management, invasive species management, emergency responses and environmental training, and site management during construction and operation of the proposed development. Provided the full implementation of mitigation measures is carried out, it is envisaged that there will be no significant residual effects on the integrity of any European sites.

In conclusion, it is the opinion of RPS that in view of best scientific knowledge and applying the precautionary principle, and in light of the conservation objectives of relevant European sites, the proposed development, either individually or in combination with other plans or projects, will not have adverse effect the integrity of any European site.

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APPENDIX A

Project Drawings

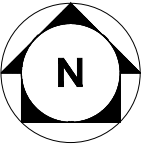
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Drawing 6A: Phasing Plan Phases 1 & 2

Drawing 6C: Phasing Plan Phase 4

Restoration Plan

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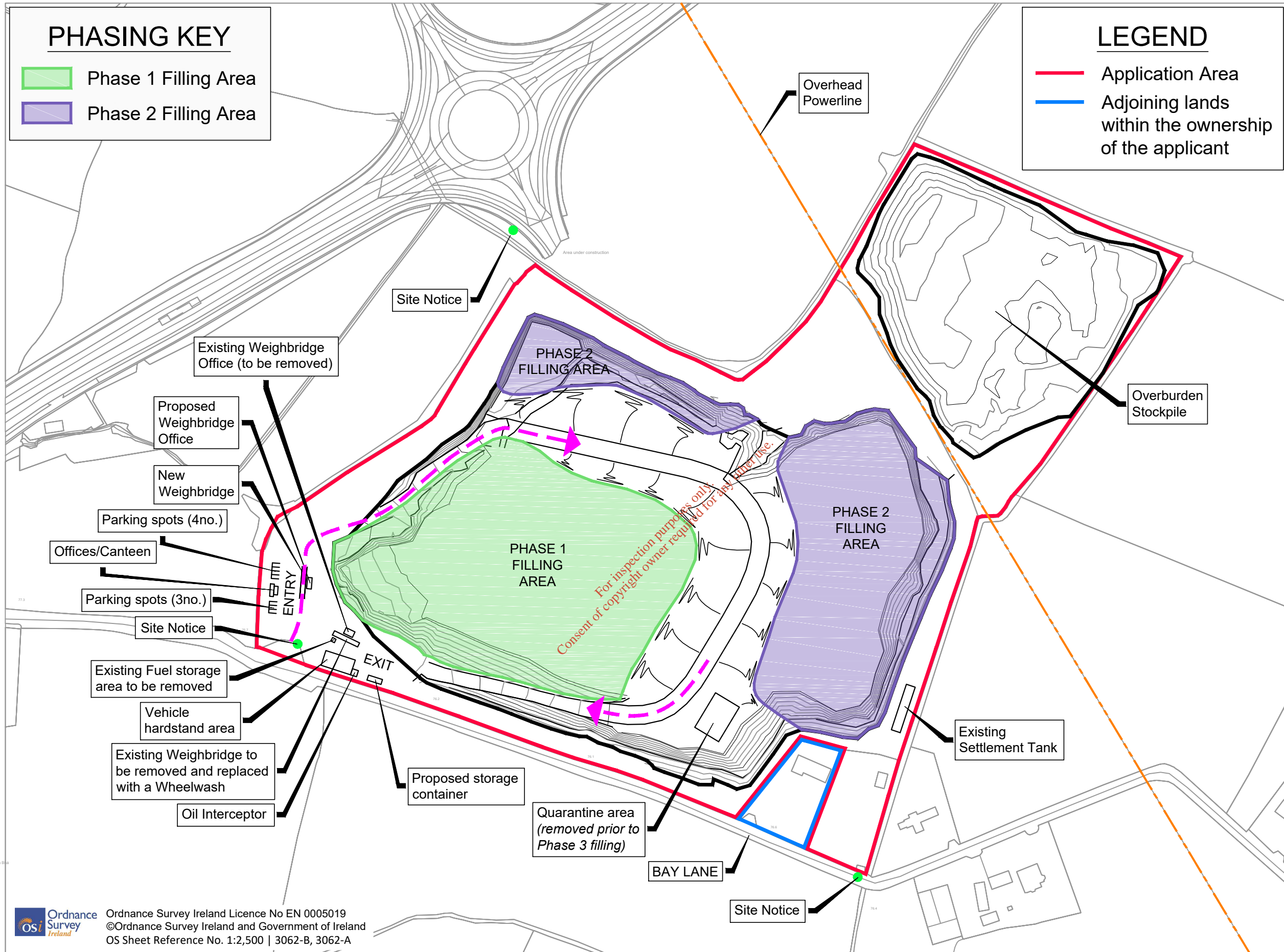



PHASING KEY

- Phase 1 Filling Area
- Phase 2 Filling Area

LEGEND

- Application Area
- Adjoining lands within the ownership of the applicant




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No.	Date	By	App	Amendment / Issue
F01	Mar'19	RH	CMG	FINAL ISSUE
D01	Feb'19	RH	CMG	DRAFT ISSUE
No.	Date	By	App	Amendment / Issue









West Pier
 Business Campus
 Dun Laoghaire
 Co Dublin
 T +353 1 4882900
 F +353 1 2835676
 W www.rpsgroup.com/ireland
 E ireland@rpsgroup.com

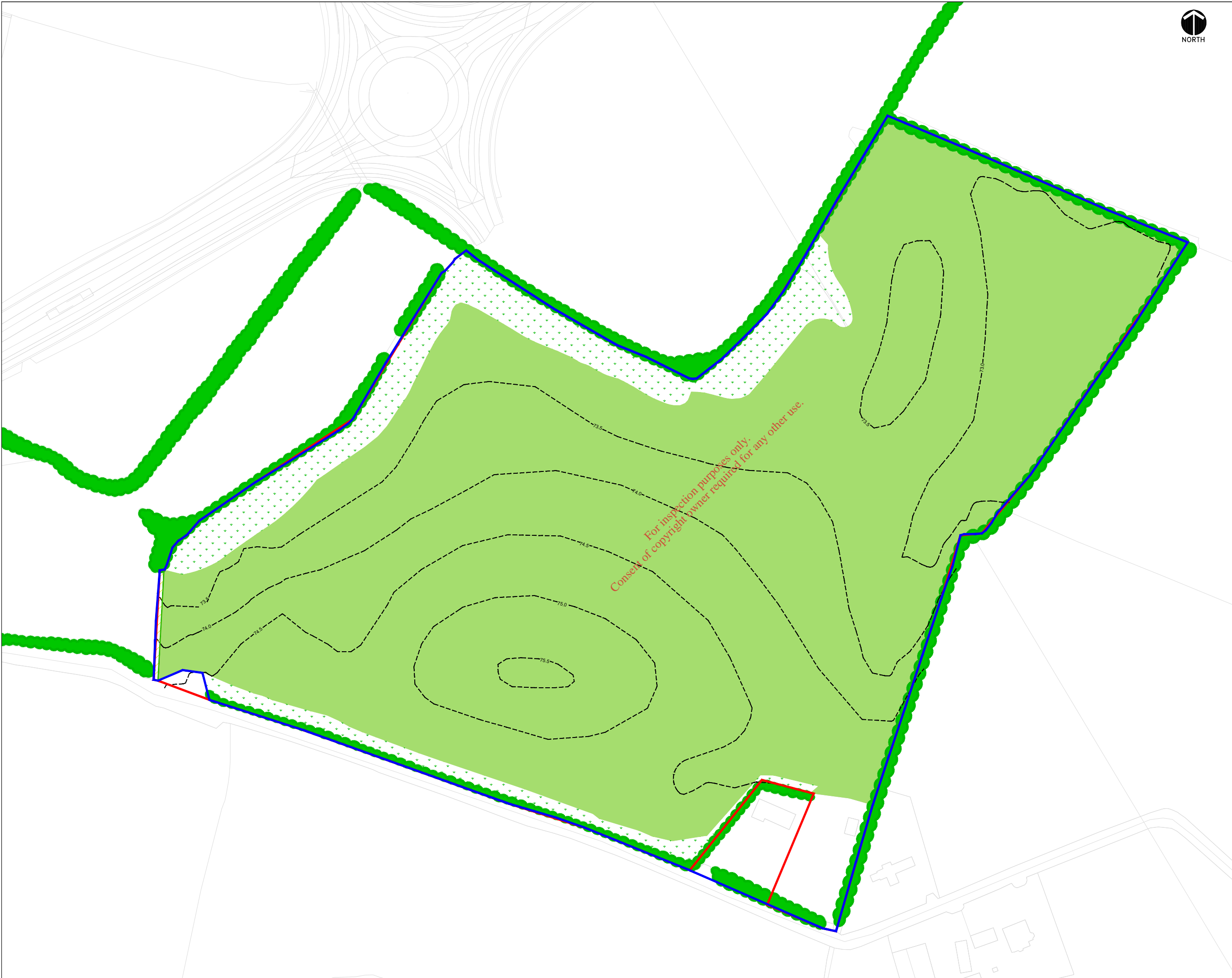
Drawn	RH
Checked	CMG
Approved	CMG
Date	Feb. 2019
Scale	NTS @ A1 1:2500 @ A3
Job No.	MDR1499

BAY LANE SOIL RECOVERY FACILITY			
DRAWING 6A PHASING PLAN PHASES 1 & 2			
File Ref.	MDR1499DG0006AF01.dwg	Drg. No.	DG0006A
Rev.	F01		



Legend

-  Site Boundary
-  Lands in control of landowners
-  Existing vegetation to be retained
-  Proposed hedgerow with tree planting
-  Proposed agricultural grass seeding areas
-  Proposed contours and levels



Revision	Date	Description	Drawn	Chk

STATUS

FOR PLANNING



Elmwood House
74 Boucher Road
Galtee
BT12 6RZ

T: +44 (0)28 9066 7914
F: +44 (0)28 9066 5285
W: rpsgroup.com/ireland

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PROJECT
Bay Lane Soil Recovery Facility

TITLE
Restoration Plan

SCALE/PAPER SIZE DRAWN BY
NTS @ A3 SA

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RPS Dublin
West Pier Business Campus
Dun Laoghaire

