Grand Canal to Lucan Urban Greenway

AA Screening

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Project number: 2021s1212

South Dublin County Council

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DUBLIN 24

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Contract

This report describes work commissioned by South Dublin County Council, by a letter dated 09/09/2021. Malin Lundberg, Mark Desmond, Michael Coyle, Hannah Mulcahy and Colm O'Leary of JBA Consulting carried out this work.

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Purpose

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Abbreviations

AA	Appropriate Assessment
CIEEM	Chartered Institute of Ecology and Environmental Management
DoEHLG	Department of Environment, Heritage and Local Government
EC	European Communities
EPA	Environmental Protection Agency
EU	European Union
GSI	Geological Survey Ireland
IROPI	Imperative Reasons of Over-riding Public Interest
NBDC	National Biodiversity Data Centre
NOx	Nitrogen Oxides
NPWS	National Parks and Wildlife Service
OPR	Office of the Planning Regulator
QI	Qualifying Interest
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SDCC	South Dublin County Council
SPA	Special Protection Area
Spp	Species (multiple)
WFD	Water Framework Directive
WWTP	Waste Water Treatment Plant
ZoI	Zone of Influence

1 Introduction

1.1 Background

JBA Consulting Engineers and Scientists Ltd. (hereafter JBA) has been commissioned by South Dublin County Council to prepare an Appropriate Assessment Screening Report for the proposed Grand Canal to Lucan Urban Greenway, Co. Dublin. The proposed project, which will be submitted under Part 8 of the Planning and Development Act (2000) as amended, consists of a cycle route constructed on existing roadways and green areas with existing footpaths.

Screening for appropriate assessment is intended to be an initial examination which must be carried out by the Planning Authority or An Bord Pleanála as the competent authority. However, this screening is completed on behalf of the project proposer to show that likely significant effects have been considered in the project development and design, and where necessary progress with further assessment.

1.2 Legislative Context

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora, known as the 'Habitats Directive' - provides legal protection for habitats and species of European importance. Article 2 of the Directive requires the maintenance or restoration of habitats and species of European Community interest, at a favourable conservation status. Articles 3 - 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000 sites. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79 / 409 / EEC).

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans or projects affecting Natura 2000 sites. Article 6(3) establishes the requirement for Appropriate Assessment:

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

Article 6(4) deals with the steps that should be taken when it is determined, as a result of Appropriate Assessment, that a plan/project will adversely affect a European site. Issues dealing with alternative solutions, imperative reasons of overriding public interest and compensatory measures need to be addressed in this case.

Article 6(4) states:

"*If, in spite of a negative assessment of the implications for the 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, the 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.*

Where the site concerned hosts a priority natural habitat type and / or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

The requirements of Articles 6(3) and 6(4) of the Habitats Directive have been transposed into Irish legislation by means of *inter alia* the European Communities (Birds and Natural Habitats) Regulations 2011-2015 (S.I. No. 477 / 2011) as amended.

1.3 Appropriate Assessment Process

Guidance on the Appropriate Assessment (AA) process was produced by the European Commission in 2002, which was subsequently developed into guidance specifically for Ireland by the Department of Environment, Heritage and Local Government (DEHLG) (2009). These guidance documents identify a staged approach to conducting an AA, as shown Figure 1-1.

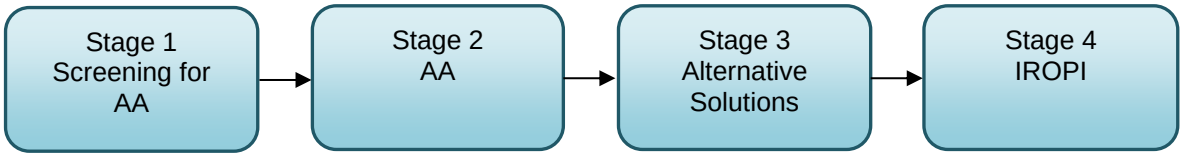

Figure 1-1: The Appropriate Assessment Process (from: Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities, DEHLG, 2009).

1.3.1 Stage 1 - Screening for AA

Office of the Planning Regulator (OPR) produced a Practice Note in 2021, PN01 - Appropriate Assessment Screening for Development Management (OPR, 2021), which builds on previous guidance and gives further clarity on the screening process. The initial, screening stage of the Appropriate Assessment is to determine:

- whether the proposed plan or project is directly connected with or necessary for the management of the European designated site for nature conservation
- if it is likely to have a significant adverse effect on the European designated site, either individually or in combination with other plans or projects

For those sites where, potential adverse impacts are identified, either alone or in combination with other plans or projects, further assessment is necessary to determine if the proposals will have an adverse impact on the integrity of a European designated site, in view of the site's conservation objectives (i.e. the process proceeds to Stage 2).

1.3.2 Stage 2 - AA

This stage requires a more in-depth evaluation of the plan or project, and the potential direct and indirect impacts of them on the integrity and interest features of the European designated site(s), alone and in-combination with other plans and projects, taking into account the site's structure, function and conservation objectives. Where required, mitigation or avoidance measures will be suggested.

The competent authority can only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site(s) concerned. If this cannot be determined, and where mitigation cannot be achieved, then alternative solutions will need to be considered (i.e. the process proceeds to Stage 3).

1.3.3 Stage 3 - Alternative Solutions

Where adverse impacts on the integrity of Natura 2000 sites are identified, and mitigation cannot be satisfactorily implemented, alternative ways of achieving the objectives of the plan or project that avoid adverse impacts need to be considered. If none can be found, the process proceeds to Stage 4.

1.3.4 Stage 4 - IROPI

Where adverse impacts of a plan or project on the integrity of Natura 2000 sites are identified and no alternative solutions exist, the plan will only be allowed to progress if imperative reasons of overriding public interest can be demonstrated. In this case compensatory measures will be required.

The process only proceeds through each of the four stages for certain plans or projects. For example, for a plan or project, not connected with management of a site, but where no likely significant impacts are identified, the process stops at stage 1. Throughout the process, the precautionary principle must be applied, so that any uncertainties do not result in adverse impacts on a site.

This report is in support of a Stage 1 Screening for Appropriate Assessment.

1.3.5 Recent judgements of the Court of Justice of the European Union (CJEU) and how they are used in

this assessment

The CJEU issued a ruling on the consideration of avoidance and reduction measures as a result of the case known as People over Wind, Peter Sweetman v Coillte Teoranta (Case C-323/17). This judgement stated that measures intended to reduce or avoid effects on a European site should only be considered within the framework of an AA, and it is not permissible to take into account such measures at the screening stage. In practice, this means that any activities that are not integral to the project (i.e. the project could conceivably take place without them) and have the effect of avoiding or reducing an impact on a European site, cannot be considered at the screening stage.

The CJEU ruling in the case of Grace & Sweetman [2018] (C-164/17) clarified the difference between avoidance and reduction (mitigation) measures and compensation. Measures intended to compensate for the negative effects of a project cannot be taken into account in the assessment of the implications of a project, and instead are considered under Article 6(4). This means that any project where an effect on the integrity of a European site remains and can only be offset by compensation, would need to proceed under Article 6(4), demonstrating “imperative reasons of overriding public interest”.

The judgements referred to as the Dutch Nitrogen cases [2018] (C-293/17 and C-294/17) have important implications for projects that could potentially impact on sites that are exceeding critical thresholds for input of damaging ammonia (but could also reasonably apply where other nutrients are impacting European sites). The judgements state that the use of thresholds to exclude project impacts is acceptable in principle, and that strategic plans can be used as mitigation but only with consideration of the certainty (or otherwise) of the outcomes of those strategic plans. It clarifies that where the status of a habitat type is already unfavourable the possibility of authorising activities which increase the problem is necessarily limited.

The CJEU ruling in the case of Holohan v An Bord Pleanala (C-462/17) also clarified the importance in AA of taking into account habitat types and species outside the boundary of the European site, where implications of the impacts on those habitat and species may impact the conservation objectives of the European site. In this assessment functionally linked and supporting habitat for species outside of European site boundaries are assessed where they could potentially impact the conservation objectives of any screened in European sites.

1.4 Methodology

The Screening for Appropriate Assessment has been prepared having regard to the Birds and Habitats Directives, the European Communities (Birds and Natural Habitats) Regulations 2011-15 as amended and relevant jurisprudence of the EU and Irish courts. The following documents have also been used to provide guidance for the assessment:

- Office of the Planning Regulator (2021) OPR Practice Note PN01 - Appropriate Assessment Screening for Development Management (OPR 2021).
- DEHLG (2009 rev 2010) Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government (DEHLG, 2009).
- European Communities (EC) (2018) Managing Natura 2000 Sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission (European Commission 2000).
- EC (2002) 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, Office for Official Publications of the European Communities, Luxembourg. European Commission (European Commission et al. 2002).
- 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. European Commission (European Commission 2007).
- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal, Second Ed. (Chartered Institute of Ecology and Environmental Management, 2018)
- Fossitt, J, (2000). A Guide to Habitats in Ireland. The Heritage Council, Kilkenny (Fossitt 2000a)

1.4.1 Desktop study

A desktop study was conducted of available published and unpublished information, along with a review of data available on the National Parks and Wildlife Service (NPWS) and National Biodiversity Data Centre (NBDC) web-based databases, in order to identify key habitats and species (including legally protected and species of conservation concern) that may be present within ecologically relevant distances from the project as explained below. A baseline habitat assessment was performed using satellite imagery of the site. The data sources below (accessed November 2021) were consulted for the desktop study:

- Aerial photography available from www.osi.ie and Esri World Imagery.
- NPWS website (www.npws.ie) where Natura 2000 site synopses, data forms and conservation objectives were obtained along with Annex 1 habitat distribution data and status reports.
- River Basin Management Plans (www.wfdireland.ie)
- NBDC Biodiversity Maps (maps.biodiversityireland.ie)
- Catchments (www.catchments.ie)
- Environmental Protection Agency Maps (https://gis.epa.ie/EPAMaps)
- Geological Survey Ireland (GSI) website (www.gsi.ie)
- GSI - Groundwater data viewer (https://dcenr.maps.arcgis.com)

1.4.2 Ecological Site Survey

To inform this AA Screening an ecological site survey was carried out on 29th September 2021 by JBA Ecologists Malin Lundberg and Mark Desmond, and an additional site survey was carried out on 12th of May 2022 by Mark Desmond, Patricia Byrne, Michael Coyle and Éimear Stephenson.

The ecological walkover survey recorded habitats and protected species, following the methods outlined in the documents below:

- Heritage Council (2011). Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011).
- Fossitt, J. (2000). A Guide to Habitats in Ireland. The Heritage Council, Kilkenny (Fossitt, 2000).
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009b).

Aerial photographs and site maps assisted the survey. Habitats have been named and described following Fossitt (2000). Nomenclature for higher plants follows that given in The New Flora of the British Isles 4th Edition (Clive Stace 2019). Identification of Irish plants generally follows Webb's An Irish Flora (Parnell and Curtis, 2012).

1.4.3 In-combination Assessment

The in-combination assessment followed the process for in-combination set out by the DTA Handbook (Tyldesley and Chapman 2013). The in-combination impacts are considered only after the assessment of the project alone. If the result of this is that the project will have no effect at all on a European site then no in-combination assessment would be necessary. However, where there is no adverse effect on site integrity, but some adverse effect an assessment of this adverse effect in-combination with other plans or projects is carried out. Other plans or projects were searched for using the National Planning Application Database, EIA portal and Myplan.ie databases all accessed online. If no other plans or projects are identified, then the assessment is complete. Where other plans or projects are identified then initially a review is made of its AA screening, or AA, and if the Competent Authority for the plan or project has made a final determination of no effect on the integrity of any European site, either alone or in-combination, this determination is used in this assessment. Where there is not a full AA, or the findings are unclear or out of date, the plan or project documentation is checked for credible evidence of real (not hypothetical) risk to a European site. Where these are identified then a detailed assessment is carried out. A summary of the approach is presented in Figure 1-2.

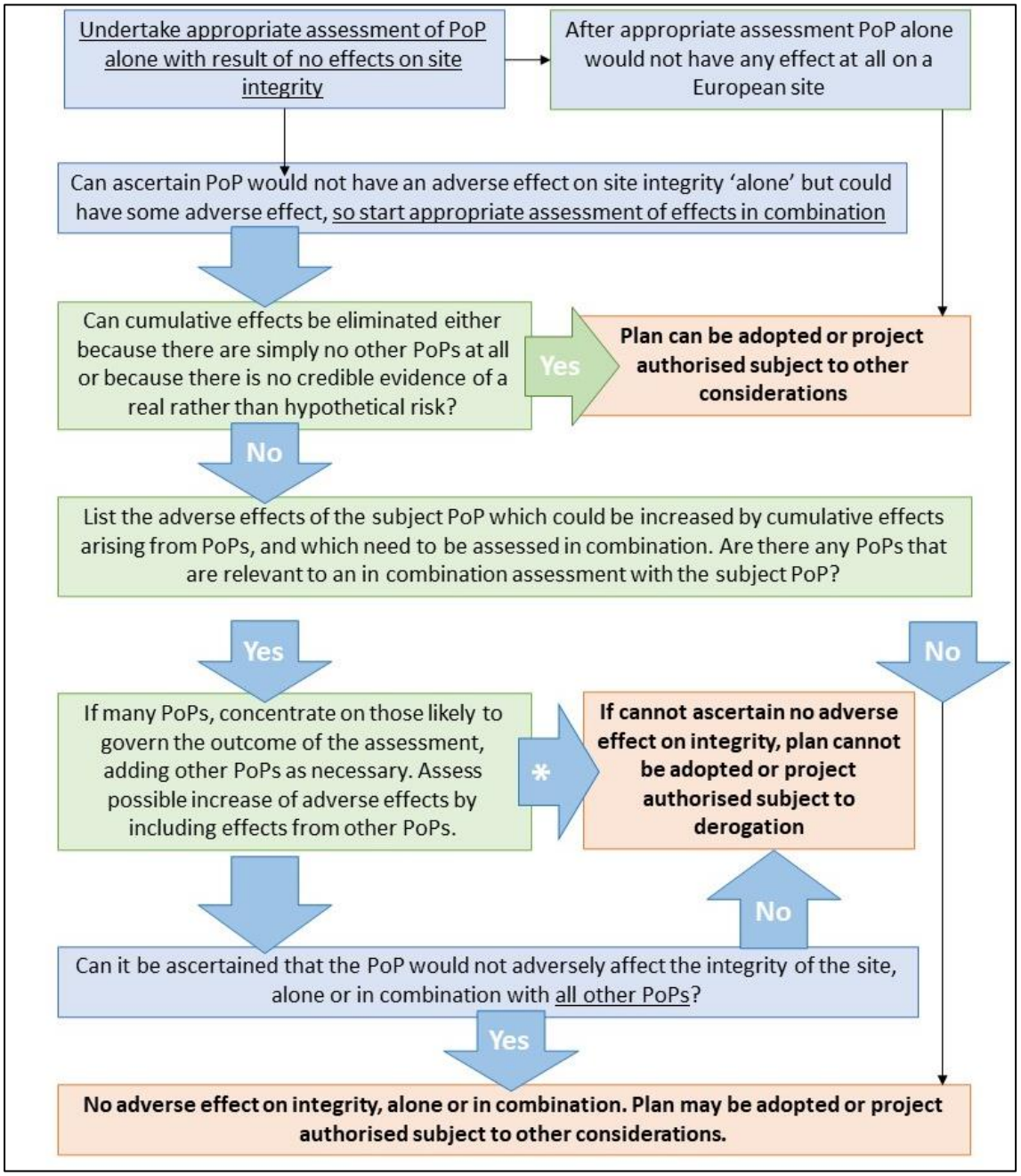

Figure 1-2: Flow diagram of process for in-combination assessment (modified from Chapman & Tyldesley, 2012)

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features only for features where this is a residual or non-significant impact. Potential sources of cumulative impacts were sought within area where there is the potential for a significant impact on relevant Natura sites identified in Section 4.

1.5 Limitations and constraints

The screening assessment necessarily relies on some assumptions, and it was inevitably subject to some limitations. These would not affect the conclusion, but the following points are recorded in order to ensure the basis of the assessment is clear:

- Information on the works and conditions on site are based on current knowledge at the time of writing. Changes to the site since this report was drafted cannot be accounted for. However,

significant changes to the site are unlikely in the time between the site visit (September 2021 and May 2022) and likely determination date (Autumn 2022).

- This assessment is based on the methodology for proposed works as described in this report. Where changes to methodology occur, an ecologist will need to be consulted to determine if the changes are likely to alter the ecological impacts and would therefore need reassessment.
- The site visit was only carried out within the proposed works site and not to any of the Natura 2000 sites within the ZoI the proposed project. The desk-based information available for these sites is sufficient to complete the assessment.

2 Project Description

2.1 The 'Project'

The proposed cycle route development is not directly connected with or necessary to the management of any Natura 2000 site and may have potential adverse impacts upon the Natura 2000 sites identified in Section 4. Therefore, the Project is subject to the requirements of the Appropriate Assessment process.

2.2 Site location

The location for the development is South Dublin, in the areas of Lucan and Adamstown. The proposed cycle route will run from the Grand Canal, north along the Griffeen River through Griffeen Valley Park, and over the N4 to Lucan. There will be a diversion to this main route north of N4 (Figure 2-1)

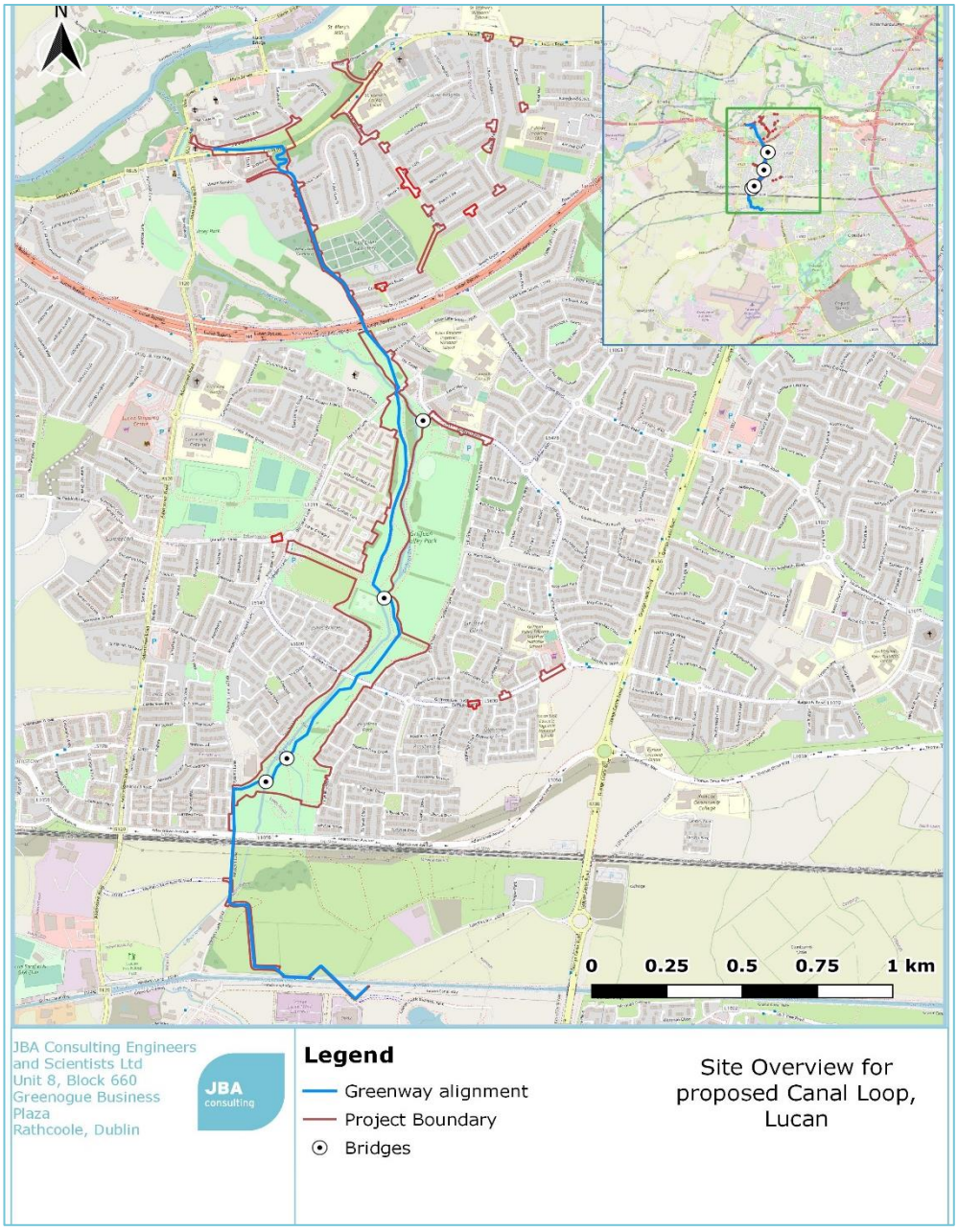

Figure 2-1 Site location for greenway (Source: OSM)

2.3 Project Description:

The primary route of the scheme from Grand Canal to Lucan Village via Griffeen Valley Park has a total length of 4.2km, of which approximately 3.54km is through parks or other green areas. The majority of the route runs along existing footpaths. As part of design development a number of secondary links have been identified along existing roads and footpaths to better connect the primary route into the surrounding areas. The secondary links will comprise of small interventions such as the removal of kissing gates, installation of way finding signage, junction tightening, road markings and safe school treatments to improve permeability and access onto the primary route. The combined length of the proposed secondary links is approximately 4.29km.

The proposed alignments are shown in Figure 2-2 below.

The varying characteristics of the proposed primary route resulted in the implementation of different cycling provision types that best suit the surrounding area. Existing infrastructure has been utilised as much as practical. Where existing footpaths are to be widened to create 4m wide shared surfaces this will entail excavating to a depth of 250mm and backfilling with compacted stone. The finish material will be bituminous surfacing. Existing public lighting will be maintained as part of the scheme with additional public lighting proposed where required. Proposed public lighting will require a trench excavation to a depth of 600mm for ducting. Refer to General Arrangement drawings 284399-ARUP-ZZ-XX-DR-C-0000 to 0021_P03 which detail the location of the proposed public lighting. Public lighting will be designed to mitigate the impact artificial light might have on local habitats. There are four locations where existing bridge located within Griffeen Valley park are to be replaced to provide a 4m wide shared surface connection. Additional landscaping and public realm improvements are proposed throughout to enhance the scheme.

2.3.1 Timeline

Works are expected to start in early 2023 and take at least 6 months.

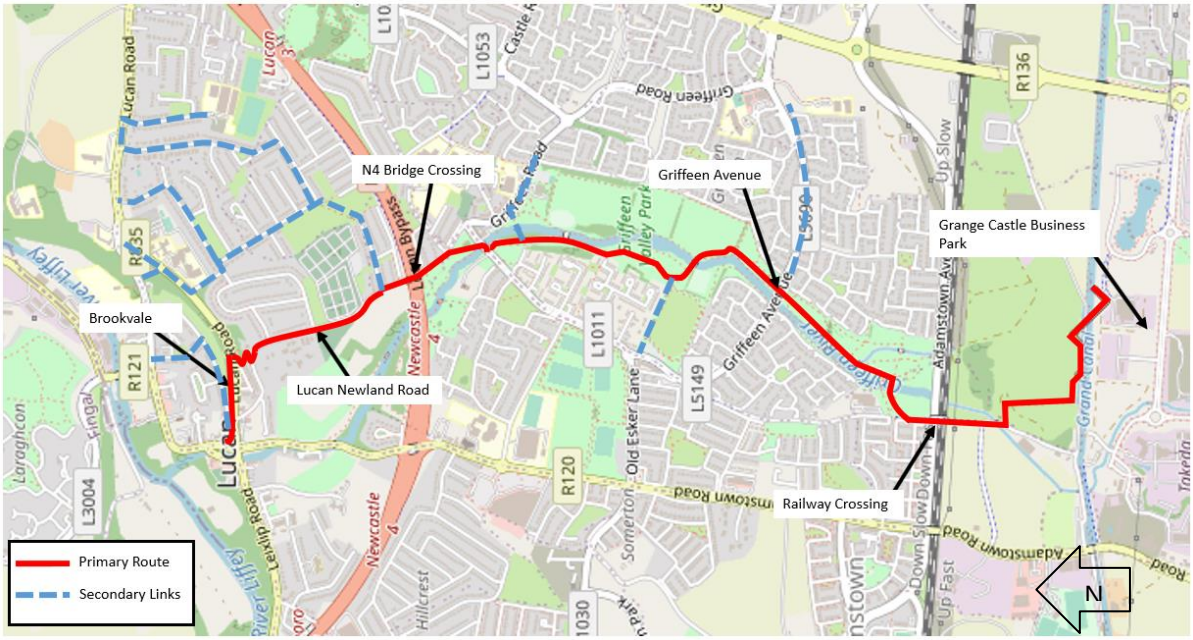

Figure 2-2: Primary Route and Secondary Links (Source map: Arup)

2.3.2 Route Sections

The Grand Canal to Lucan Urban Greenway comprises mainly of parkland or low-speed residential roads. The varying characteristics of the proposed primary route resulted in the implementation of different cycling provision types that best suit the surrounding area. In order to best describe the proposed interventions the route has been subdivided into each eight sections. The works proposed for each subsection are described in the summary below. Figure 2 illustrates the approximate location and extent of each section.

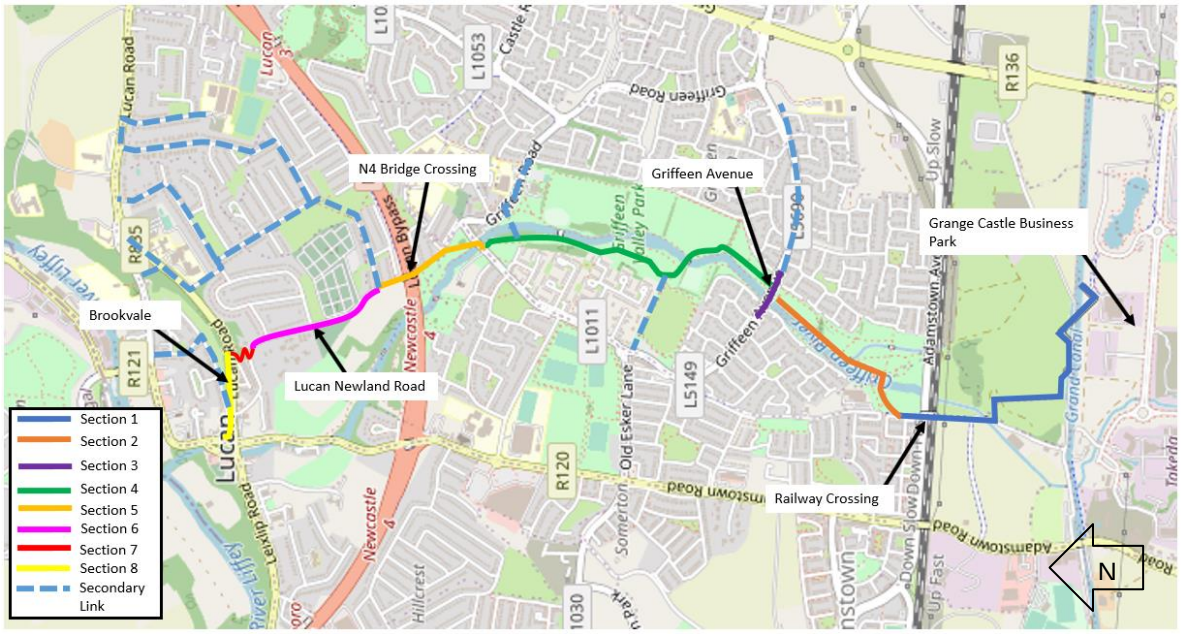

Figure 2-3: Proposed Route Sections and Secondary Links (Source map: Arup)

2.3.2.1 Section 1 – Grange Castle Business Park to Griffeen Valley Park

Starting at the Grange Castle Business Park the Greenway will begin at the Grand Canal Greenway and cross the existing pedestrian bridge into the Clonburris SDZ parklands. The route will utilise the existing pavement in the parklands with minor engineering and landscaping improvements. The remainder of this section consists of Hayden's Lane and the existing railway bridge. Due to the low traffic volume and speed nature of Hayden's Lane it is proposed to upgrade it to a shared street. No major works are proposed at the existing railway bridge except for minor improvements to improve visibility and safety for users. Existing public lighting will provide appropriate lighting for this section of the greenway.

2.3.2.2 Section 2 – Hayden's Lane to Griffeen Avenue

A 4m wide shared surface is proposed for this section. The existing pavement is sufficiently wide to accommodate the proposed 4m shared surface along most of this section. There are two bridges to be upgraded in this section. Both bridges are approximately 2m wide and it is proposed to replace these with 4m wide bridges. Existing public lighting will provide appropriate lighting for this section of the greenway.

2.3.2.3 Section 3 – Griffeen Avenue

Griffeen Avenue splits Griffeen Valley Park into two sections and forms an important link between the southern and northern section of the park. It is proposed enhance the public realm areas on either side of the road to create a safe and welcoming environment. These improvements include opening the boundary wall of the park; providing a park plaza with a resting area and landscaping interventions; converting the existing signalised crossing to a raised belisha beacon zebra crossing and narrowing the carriageway to 6m. There are no changes proposed to the existing public lighting provision on Griffeen Avenue.

2.3.2.4 Section 4 – Griffeen Avenue to Esker Bridge

The northern section will consist of 4m wide shared surface. The existing pavement along this section ranges between 2 and 2.6 meters, to achieve the desirable pavement widths, existing pavements will need to be widened into the adjacent verge. The widening is designed to minimise impact on tree route systems. New pavements will also be constructed to provide connections through desire lines in the park. There are two bridges to be upgraded in this section. Both existing bridges are approximately 1.5 to 2m wide and it is proposed to replace these with 4m wide bridges. There is no existing lighting in the

northern section of the park. Where lighting is proposed within the vicinity of trees, bat sensitive lighting will be provided.

2.3.2.5 Section 5 – Esker Bridge to Lucan Newlands Road

It is proposed to reduce the width of the carriageway at the bridge to 6 meters, provide a new footpath on the northern section and widen the existing footpath on the southern section to a minimum width of 2 meters. A 10m wide raised belisha beacon crossing is proposed to connect the route from Griffeen Valley Park across Esker Bridge. North of Esker bridge it is proposed to upgrade the existing path to a 4m wide shared surface, the existing pavement is approximately 2m wide, therefore, widening will be required. Some realignment of the path will be required at the approach to Esker Lane to provide for smooth cycling conditions. No improvements are proposed to the N4 crossing bridge. Public Lighting will be provided in the parklands north of Esker Bridge as there are no provisions in the existing conditions. Where lighting is proposed within the vicinity of trees, bat sensitive lighting will be provided.

2.3.2.6 Section 6 –Lucan Newlands Road to Esker Lawns

This section consists of Lucan Newlands Road, between Cherbury Park Road and Esker Lawn. It is proposed to upgrade this section to a shared street and provide a series of speed mitigation measures.

2.3.2.7 Section 7 – Brookvale

Brookvale forms an important link along the proposed route as it is the connecting link between Lucan Newlands Road and Lucan Village. It is proposed to provide a gently sloped route through Brookvale that takes the form of a 3m shared space with gradients of less than 5% or 1:20 and landings every 10m or 500mm rise and resting places at each turn. Stairs are provided through the centre of route to link up the level landings and provide an alternative route for pedestrians. A landscaping and public realm design have been conducted for this location to integrate this section of the route into the surrounding area.

2.3.2.8 Section 8 – Sarsfield Park Boardwalk

It is proposed to provide a raised table and toucan Crossing on Lucan Road to provide a link from the base of Brookvale to the boardwalk adjacent to Lucan Road. The boardwalk will serve as a connection to Lucan Village through Sarsfield Park Lane and providing universal access for all along a shared pedestrian and cycling facility while avoiding the space and gradient constraints along Lucan Road. The proposed boardwalk is approximately 234m in length and has a varying width with a minimum width of 3m achieved throughout.

2.3.3 Summary of Principal Structures (bridges)

In addition to the works creating the greenway, there are four locations where principal structures are required along the Greenway and are identified as follows;

- River Griffeen Crossing No.1
- River Griffeen Crossing No.2
- River Griffeen Crossing No.3
- River Griffeen Crossing No.4

The following image details how the proposed bridge replacements will look. Each prefabricated bridge will provide a 4m wide shared pedestrian and cycle connection over the river. Further details of which are described in the next sections.

Figure 2-4: Proposed Bridge Design Precedent – 4m wide Shared Pedestrian and Cycle Connection (Source image: Arup)

Figure 2-5: Proposed Bridge Design Precedent - Steel Through-Truss Arrangement Supported on Concrete Abutments (Source image: Arup)

Figure 2-6: Proposed Bridge Design Precedent - Steel Through-Truss Arrangement Supported on Concrete Abutments (Source image: Arup)

2.3.3.1 River Griffeen Crossing No. 1

A new shared pedestrian and cyclist path is proposed to cross the River Griffeen at the southern section of Griffeen Valley Park, adjacent to Hayden's Lane. The existing 2.1m wide 18m single span bridge is proposed to be replaced with a wider prefabricated bridge to provide for a 4m wide crossing over the river.

The proposal consists of 4m wide 18m single span bridge, comprising a steel through-truss arrangement supported on concrete abutments. This configuration minimises the structural depth below deck level, ensuring the superstructure is clear of the design flood level at this location. Soffit levels of the proposals will match that of the existing bridge where possible.

A 1.45m high parapet on the bridge will provide suitable protection for pedestrians and cyclists.

To minimise the environmental impact on the watercourse, where possible it is proposed to retain and modify the existing concrete abutments to carry the additional load of the replacement bridge. A detailed abutment design and bridge replacement methodology will follow the completion of ground investigations.

An offset of approximately 2m from the edge of abutment to Top of Bank (TOB) will provide adequate space to install protective measures to control any accidental discharge or run-off of construction materials down the slope and into the watercourse below.

A temporary working platform will be constructed to support the crane which will be used to both remove the existing bridge deck and lift the replacement deck in place. Lifting it in place will minimise any interference with the watercourse. There is sufficient space on the West side of the existing bridge to construct the working platform in a safe location that will not impact the watercourse.

In order to remove the existing bridge the superstructure will be dislodged from the abutments. The bolted connection will be disconnected in the reverse order as to how it was installed. If required, these connections can be locally broken out and the concrete can be repaired if it the support is to be reused. The superstructure will be lifted out in one go and then dismantled at a suitable location on site before

being removed off site. Lifting it out in one manoeuvre will minimise any interference with the watercourse.

A Construction Environmental Management Plan (CEMP) will be prepared in conjunction with the appointed contractor to agree appropriate additional environmental mitigation measures to ensure the watercourse is protected.

The steel decking will be finished with a combined waterproofing / anti-slip surfacing.

No additional structures are required either end of this bridge, as the shared path approaches at grade.

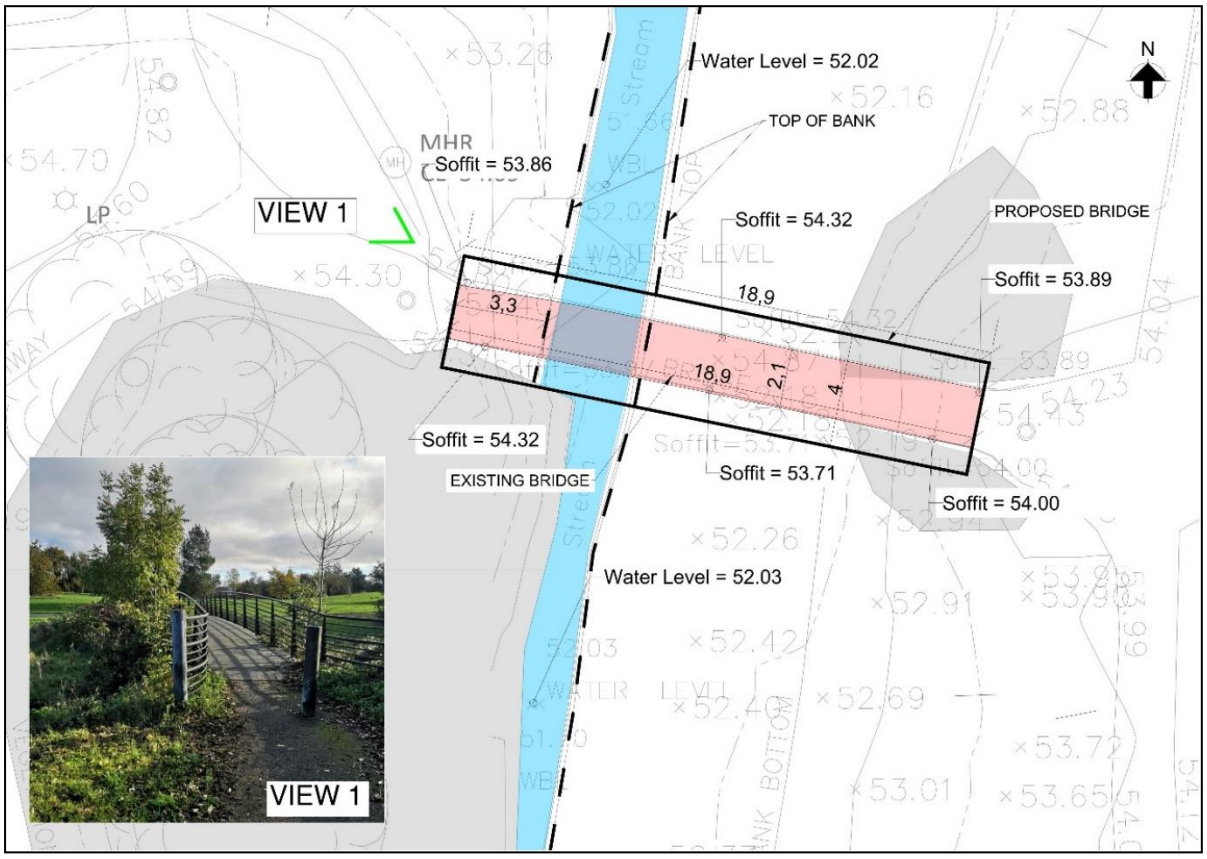

Figure 2-7 Plan View of Existing and Proposed River Griffeen Crossing No.1 (Source image: Arup)

2.3.3.2 River Griffeen Crossing No. 2

A new shared pedestrian and cyclist track is proposed to cross the River Griffeen at the southern section of Griffeen Valley Park, adjacent to Hayden's Park Dale. The existing 2.1m wide with a span of 14.4m is proposed to be replaced with a wider prefabricated bridge to provide for a 4m wide crossing over the river.

The proposal consists of 4m wide 14.4m single span bridge, comprising a steel through-truss arrangement supported on concrete abutments. This configuration minimises the structural depth below deck level, ensuring the superstructure is clear of the design flood level at this location. Soffit levels of the proposals will match that of the existing bridge where possible.

A 1.45m high parapet on the bridge will provide suitable protection for pedestrians and cyclists.

To minimise the environmental impact on the watercourse, where possible it is proposed to retain and modify the existing concrete abutments to carry the additional load of the replacement bridge. A detailed abutment design and bridge replacement methodology will follow the completion of ground investigation.

An offset of approximately 2m from the edge of abutment to Top of Bank (TOB) will provide adequate space to install protective measures to control any accidental discharge or run-off of construction materials down the slope and into the watercourse below.

A temporary working platform will be constructed to support the crane which will be used to both remove the existing bridge deck and lift the replacement deck in place. Lifting the deck in place will minimise any interference with the watercourse. There is sufficient space on the East side of the existing bridge to construct the working platform in a safe location that will not impact the watercourse.

In order to remove the existing bridge the superstructure will be dislodged from the abutments. The bolted connection will be disconnected in the reverse order as to how it was installed. If required, these connections can be locally broken out and the concrete can be repaired if it the support is to be reused. The superstructure will be lifted out in one go and then dismantled at a suitable location on site before being removed off site. Lifting it out in one manoeuvre will minimise any interference with the watercourse.

A Construction Environmental Management Plan (CEMP) will be prepared in conjunction with the appointed contractor to agree appropriate additional environmental mitigation measures to ensure the watercourse is protected.

The steel decking will be finished with a combined waterproofing / anti-slip surfacing.

No additional structures are required either end of this bridge, as the shared path approaches at grade.

Figure 2-8: Plan View of Existing and Proposed River Griffeen Crossing No.2 (Source image: Arup)

2.3.3.3 River Griffeen Crossing No. 3

A new shared pedestrian and cyclist path is proposed to cross the River Griffeen at the northern section of Griffeen Valley Park, adjacent to the Dog Run Park. The existing 2.2m wide 22.4m span bridge is proposed to be replaced with a wider prefabricated bridge to provide for a 4m wide crossing over the river.

The proposal consists of 4m wide 23.2m single span bridge, comprising a steel through-truss arrangement supported on concrete abutments. Soffit levels of the proposals will match that of the existing bridge where possible. This configuration minimises the structural depth below deck level,

ensuring the superstructure is clear of the design flood level at this location. Soffit levels of the proposals will match that of the existing bridge where possible.

A 1.45m high parapet on the bridge will provide suitable protection for pedestrians and cyclists.

To minimise the environmental impact on the watercourse, where possible it is proposed to retain and modify the existing concrete abutments to carry the additional load of the replacement bridge. A detailed abutment design and bridge replacement methodology will follow the completion of ground investigation.

An offset of approximately 2m from the edge of abutment to Top of Bank (TOB) will provide adequate space to install protective measures to control any accidental discharge or run-off of construction materials down the slope and into the watercourse below.

A temporary working platform will be constructed to support the crane which will be used to both remove the existing bridge deck and lift the replacement deck in place. Lifting the deck in place will minimise any interference with the watercourse. There is sufficient space on either side of the existing bridge to construct the working platform in a safe location that will not impact the watercourse.

In order to remove the existing bridge the superstructure will be dislodged from the abutments. The bolted connection will be disconnected in the reverse order as to how it was installed. If required, these connections can be locally broken out and the concrete can be repaired if it the support is to be reused. The superstructure will be lifted out in one go and then dismantled at a suitable location on site before being removed off site. Lifting it out in one manoeuvre will minimise any interference with the watercourse.

A Construction Environmental Management Plan (CEMP) will be prepared in conjunction with the appointed contractor to agree appropriate additional environmental mitigation measures to ensure the watercourse is protected.

The steel decking will be finished with a combined waterproofing / anti-slip surfacing.

No additional structures are required either end of this bridge, as the shared path approaches at grade.

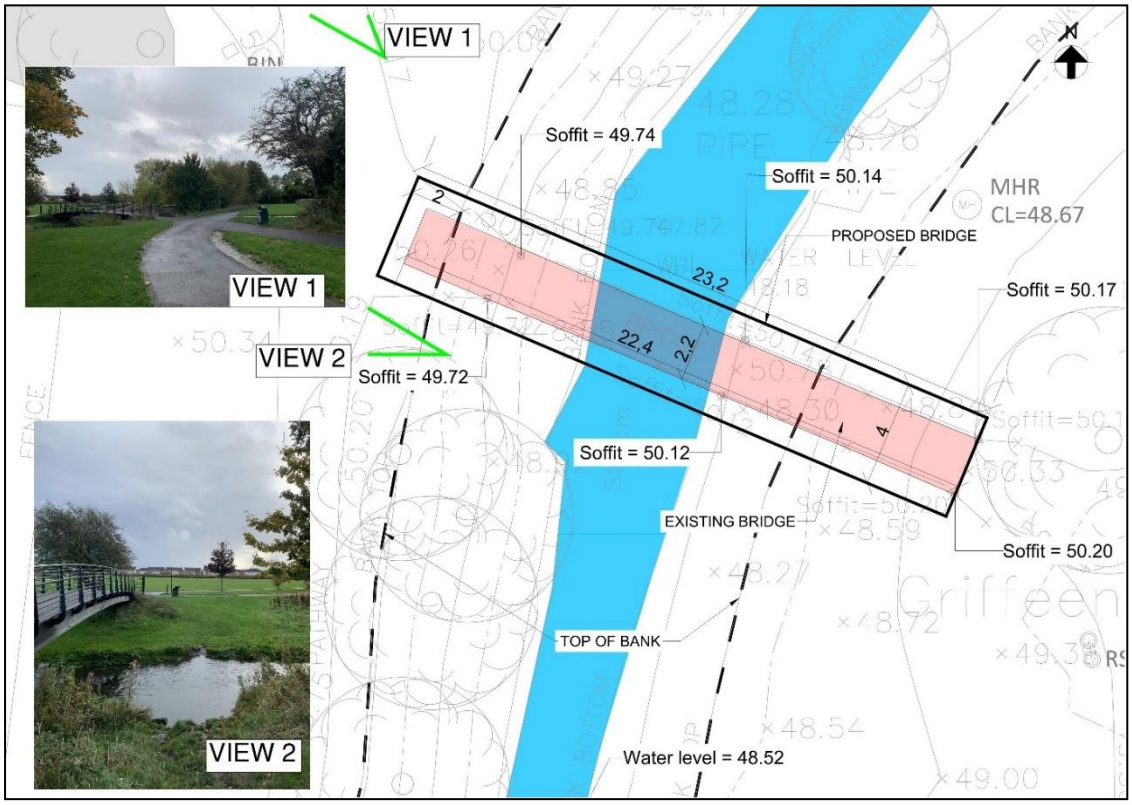

Figure 2-9: Plan View of Existing and Proposed River Griffeen Crossing No.3 (Source image: Arup)

2.3.3.4 River Griffeen Crossing No. 4

A new shared pedestrian and cyclist path is proposed to cross the River Griffeen at the northern section of Griffeen Valley Park, adjacent to Esker Manor. The existing 1.4m wide bridge spanning approximately 10.8m is proposed to be replaced with a wider prefabricated bridge to provide for a 4m wide crossing over the river.

The proposal consists of 4m wide 13.8m single span bridge, comprising a steel through-truss arrangement supported on concrete abutments. This configuration minimises the structural depth below deck level, ensuring the superstructure is clear of the design flood level at this location. Soffit levels of the proposals will match that of the existing bridge where possible.

A 1.45m high parapet on the bridge will provide suitable protection for pedestrians and cyclists.

To minimise the environmental impact on the watercourse, where possible it is proposed to retain and modify the existing concrete abutments to carry the additional load of the replacement bridge. A detailed abutment design and bridge replacement methodology will follow the completion of ground investigation.

An offset of approximately 2m from the edge of abutment to Top of Bank (TOB) will provide adequate space to install protective measures to control any accidental discharge or run-off of construction materials down the slope and into the watercourse below.

A temporary working platform will be constructed to support the crane which will be used to both remove the existing bridge deck and lift the replacement deck in place. Lifting the deck in place will minimise any interference with the watercourse. Due to the constrained space, existing trees and vegetation, the weight of the lift could be reduced by erecting the bridge in parts and assembled over the waterway. This will reduce the size of the crane required and potentially the size of the working platform. The working platform would be constructed on the East side of the existing bridge with mitigation measures put in place to minimise impact to the existing vegetation and the watercourse.

In order to remove the existing bridge the superstructure will be dislodged from the abutments. The bolted connection will be disconnected in the reverse order as to how it was installed. If required, these connections can be locally broken out and the concrete can be repaired if it the support is to be reused. The preferred option for removing the existing bridge would be to lift the superstructure out in one go and then dismantled at a suitable location on site before being removed off site. However, similar to the proposed construction methodology the existing superstructure could be dissembled in parts before being lifted out and removed off site. If it were to be dismantled in parts suitable mitigation measures would be put in place to minimise any interference with the watercourse.

A Construction Environmental Management Plan (CEMP) will be prepared in conjunction with the appointed contractor to agree appropriate additional environmental mitigation measures to ensure the watercourse is protected.

The steel decking will be finished with a combined waterproofing / anti-slip surfacing.

No additional structures are required either end of this bridge, as the shared path approaches at grade.

Figure 2-10: Plan View of Existing and Proposed River Griffeen Crossing No. 4 (Source image: Arup)

2.4 Project Area of Influence

The project will primarily affect the site only, but a wider area of influence is used for impacts relating to noise disturbance (500m), air pollution (5km), surface water (15km).

3 Existing Environment

An ecological walkover survey was carried out on the 29th of September 2021, and an additional walkover was carried out on the 12th of May 2022. Descriptions of the habitats and species are provided in the sections below that outline the ecological baseline of the proposed site.

3.1 Habitats

Habitats recorded are listed in Table 3-1 and detailed descriptions are provided in the sections below. Habitat map is provided in Figure 3-1.

Note no Annex I habitats were recorded in the project boundary during the site visit.

Table 3-1: List of habitats recorded on site

Habitat	Fossitt Code
Flower beds and borders	BC4
Stone walls and other stonework	BL1
Buildings and artificial surfaces	BL3
Soil and Bare Ground	ED2
Reed and large sedge swamps	FS1
Upland/Eroding river	FW1
Depositing lowland rivers	FW2
Drainage ditches	FW4
Amenity Grassland	GA2
Dry meadows and grassy verges	GS2
Wet grassland	GS4
(Mixed) Broadleaved woodland	WD1
Mixed Broadleaf/Conifer woodland	WD2
Scattered trees and parkland	WD5
Hedgerows	WL1
Treeline	WL2
Riparian woodland	WN5
Scrub	WS1
Wet willow-alder-ash woodland	WN6
Immature woodland	WS2

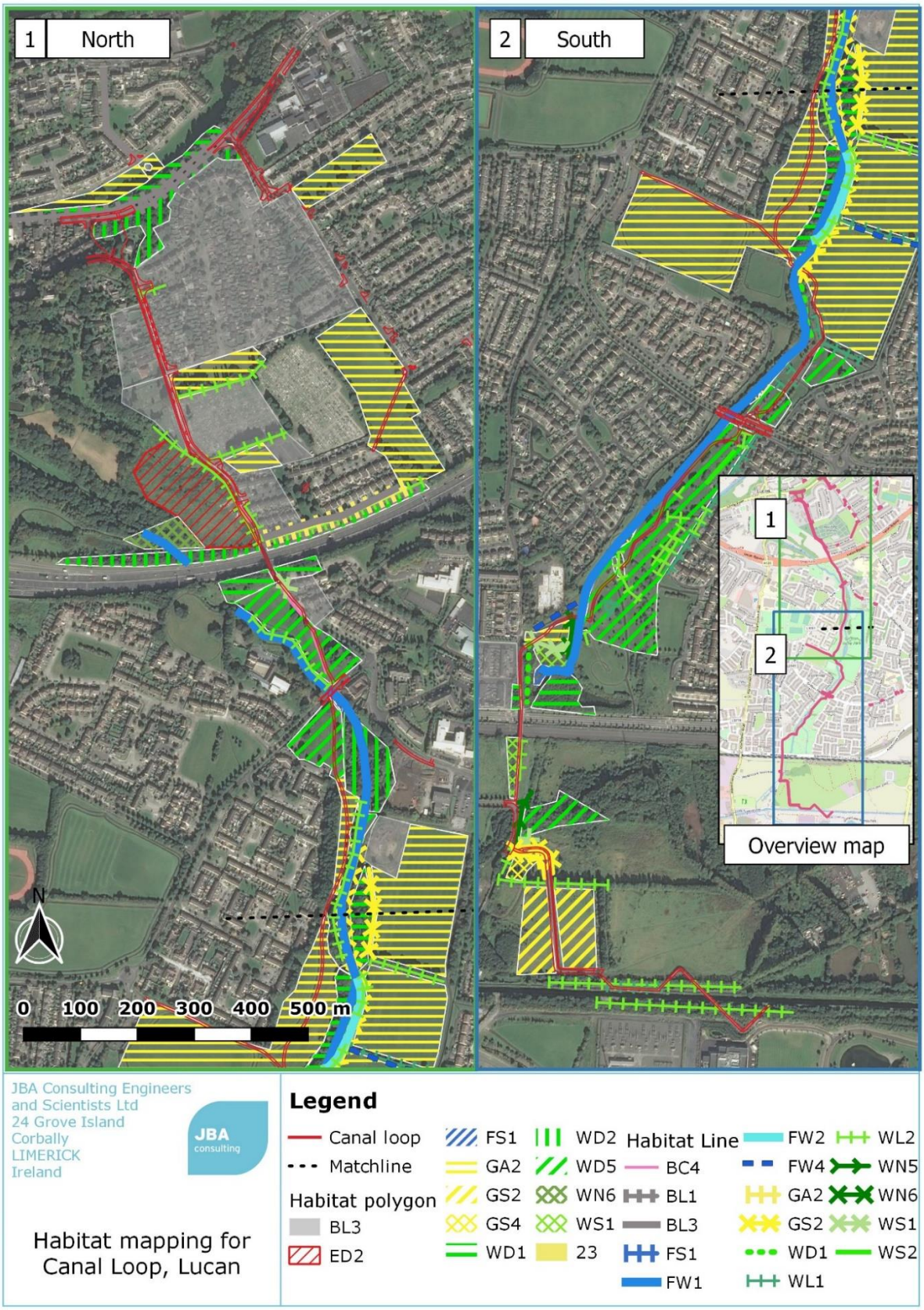

Figure 3-1: Habitat map of North and south of proposed greenway (Source: ESRI Satellite World Imagery).

3.1.1 Flower beds and borders - BC4

There are two strips with sown wildflowers just north of N4 (Figure 3-2). These include a range of species, such as Sunflower *Helianthus* spp., Cornflower *Centaurea cyanus*, Yarrow *Achillea millefolium*, Common Poppy *Papaver rhoeas,* Fragrant Wallflower *Erysimum odoratum* and Common Mallow *Malva sylvestris*. Among this area were ornamental, non-native plant species including Marigold *Calendula spp*, along with a large abundance of herbaceous species, including Field Mustard *Brassica rapa*, Cleavers *Galium aparine*, Nettle *Urtica dioica*, Thistle *Cirsium spp*, Clover *Trifolium spp*, Cuckoo flower *Cardamine pratensis*. There is also a flower bed strip in the entryway between Esker Hill and the neighbouring parkland. This habitat included non-natives species Spanish Bluebells *Hyacinthoides hispanica*.

Figure 3-2: Flower beds and parkland.

3.1.2 Stone walls and other stonework - BL1

Stonewalls occur on both sides of Lucan Road (R835) and in the residential area of Cherbury Park towards N4. There stonewalls along the stretch of road on Esker Hill and the parkland that borders it. This stonewall extends and passes through this parkland towards the Lucan Road (R835). Another stone wall passes along the northern-most stretch of secondary link of the cycle route, along the Chapel Hill road (L1005).

3.1.3 Buildings and artificial surfaces - BL3

The habitat buildings and artificial surfaces include roads, walkways, cycle paths and houses. The proposed cycle route will be along existing paths through Griffeen Valley Park and roads leading to and from it. The proposed construction will occur alongside housing estates of Esker Lawns, Beech Park, Cherry Park Avenue. The works will also pass alongside the New Esker Cemetery. There is likely to be minimal disruption in these areas.

3.1.4 Spoil and bare ground - ED2

There is a construction site north of N4 and west of Esker Road where the topsoil has been stripped and is now made up of bare ground. The site could not be accessed during the survey.

3.1.5 Eroding/upland rivers - FW1

Griffeen River has riffle and pool sections. The substrate is gravely with some large boulders. There is sparse instream vegetation in the downstream sections; some instream mosses were recorded in the river close to the playground within the park. There is more vegetation occurring in the river further upstream; species include Bulrush *Typha latifolia*, Bur-reed *Sparganium erectum*, Fool's-watercress *Apium nodiflorum*, Pondweed *Potamogeton* spp. and some Goat Willow *Salix caprea,* and Alder *Alnus*

glutinosa on the banks. Frequently along the river, small weirs and rocks creating small rapids were noted during the survey (Figure 4-5), while also containing eroded river edges and muddy banks.

Figure 3-3: The river system through the parkland containing a rock-created rapid

3.1.6 Depositing/lowland rivers - FW2

At the centre of the park, there is a small side channel running along the main river channel for about 150m (Figure 3-4). There is a slow flow in this channel causing deposition and Fool's-water-cress covers the channel.

Figure 3-4: Side channel with slow flowing water and Fool's-water-cress present in channel.

3.1.7 Drainage ditches - FW4

There is a dry ditch in the southwestern end of the park, next to Haydens Lane. No wetland species were recorded, however some shrubs occurred next to it, including species such as Willowherb, Dog

Dog-rose *Rosa canina*, Ash that was dead or had dieback, Elder *Sambucus nigra*, Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna*.

3.1.8 Reed and Large Sedge Swamps- FS1

There are multiple wet areas within this project, each located alongside the banks of the Grifeen river in the south are of the project site and to the north of Adamstown Avenue and the railway. This area is dominated by wetland species including Meadowsweet *Filipendula ulmaria*, Yellow Iris *Iris pseudacorus*, mixes of grasses *Poaceae*, White Clover *Trifolium repens*, Cuckoo Flower *Cardamine pratensis*, Cinquefoil *Potentilla sp*, Bush Vetch *Vicia sepium*, Creeping Buttercup *Ranunculus repens*, Wild Angelica *Angelica sylvestris*, Nettle *Urtica dioica*, Thistle *Cirsium* spp, Docks *Rumex* spp, Rosebay Willowherb *Chamaenerion angustifolium*, Great Hairy Willowherb *Epilobium hirsutum*, with Bulrush *Typha latifolia*, Common Rush *Juncus effusus*, and Fool's Water-cress *Apium nodiflorum* present closer to the river's edge. This habitat has the potential to provide habitat for amphibians, including spawning habitat.

3.1.9 Amenity grassland (improved) - GA2

Amenity grassland is the main habitat occurring in Griffeen Valley Park, including sport fields and recreational areas (Figure 3-5). The habitat is dominated by grasses, White Clover *Trifolium repens* and Dandelion *Taraxacum* spp. Many of the amenity grasslands are surrounded by a boundary of treelines. Other areas of amenity grassland include the greenways that occur within housing estates that are borderline to the proposed cycle tracks, which include Sarsfield park to the northern border of the Lucan road (R835), Beech Park which is on the eastern side of the New Esker cemetery, and the area to the south of Adamstown Avenue and the train tracks

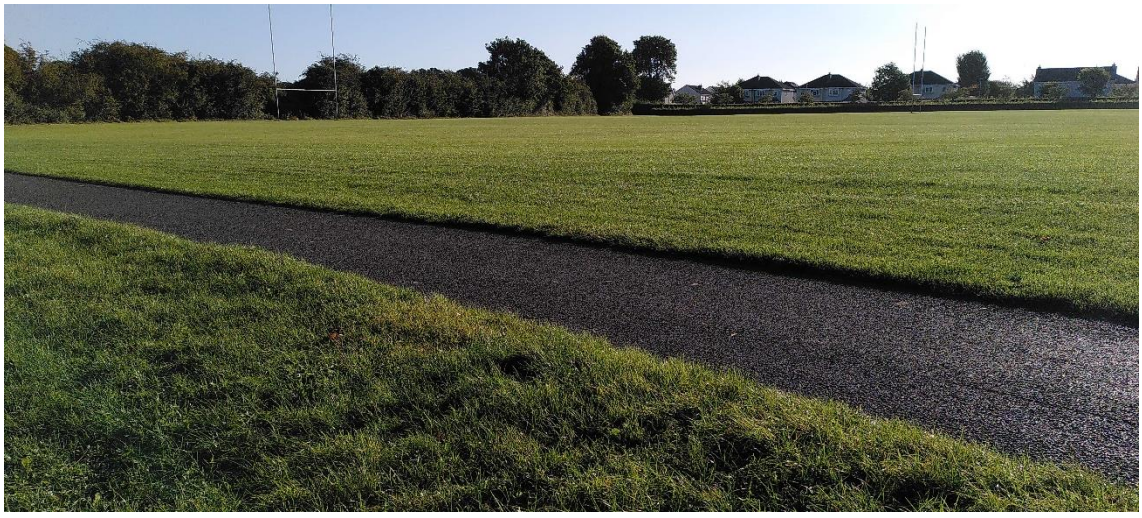

Figure 3-5: Amenity grassland with hedgerow in the distance and footpath up close.

3.1.10 Dry meadows and grassy verges - GS2

Dry meadows and grassy verges are grassland habitats that are not mown regularly, and the herbs and grasses are allowed to grow taller than in the amenity grassland. This habitat occurs in some areas on the bank of the river with a small number of fields in the southern end of the park and in the north-western end of the proposed cycle route north of N4. This habitat is generally more species rich and species recorded include Silverweed *Potentilla anserina*, Creeping Buttercup *Ranunculus repens,* Dock *Rumex* spp, Dandelion, White Clover, Red Clover *Trifolium pratense*, Perennial Ryegrass *Lolium perenne*, Yorkshire Fog *Holcus lanatus*, Hawksbeard *Crepis* spp., Ribwort Plantain *Plantago lanceolata*, Selfheal *Prunella vulgaris*, Bush Vetch *Vicia sepium*, Black Medic *Medicago lupulina*, Red Bartsia *Odontites vernus*, Nettle, Creeping Cinquefoil *Potentilla reptans*, Crown Daisy *Glebionis coronaria*, Common Daisy *Bellis perennis* and Rushes *Juncus* spp.

3.1.11 Wet Grassland GS4

This habitat is located in low-lying grassy area along the eastern bank of the Griffeen river, in the southern section of the Park next to the bridge (Figure 3-6). The habitat is dominated mainly by a mixture

of grasses, with high presence of Bulrush *Typha latifolia* and frequent Meadowsweet *Filipendula ulmaria*. There was also the presence of a stand of Yellow Iris *Iris peseudocarpus* found within the site.

Figure 3-6: Wet Grassland located in the southern area of the Griffeen valley park

3.1.12 Mixed broadleaved woodland - WD1

Broadleaved woodland occurs within the Griffeen Park and on both the north and south of the Lucan Road (Figure 3-7).

The woodlands to the southern area of Griffeen Park contain many riparian species and mixed with planted species. There is Grey Willow *Salix cinerea*, white willow *Salix alba*, Alder, Hawthorn *Crataegus monogyna*, bush vetch, creeping buttercup, willowherb, dock, nettle, meadowsweet. The woodlands also contain some Ash trees that are showing present sins of ash dieback

Understorey includes both woody species, such as Dogwood *Cornus sanguinea*, Blackthorn *Prunus spinosa*, saplings of Ash and Cherry, Bramble *Rubus fruticosus* agg., Darwin's Barberry *Berberis darwinii*, St John's Wort *Hypericum perforatum*, Holly *Ilex aquifolium* and non-woody species, such as Willowherb, Nettle, Reed Canary Grass *Phalaris arundinacea*, Dock, Hogweed *Heracleum sphondylium*, Wood Avens *Geum urbanum* and Cow Parsley *Anthriscus sylvestris.*

The area north of the Lucan Road has some Cotoneaster, Cherry laurel *Prunus laurocerasus*, Rowan *Sorbus aucuparia,* Ash, Sycamore *Acer pseudoplatanus,* Horse Chestnut *Aesculus hippocastanum,* Wild garlic *Allium ursinum,* Spanish bluebells *Hyacinthoides hispanica* and Comfrey *Symphytum officinale* present.

Within woodland between the Lucan Road and Esker hill, lies in an area mainly of Hazel and Beech with some ash and holly present. The ground has a sparse layer of Ivy *Hedare helix*, with Bramble and dry meadow species spread along the verges of the adjacent scrub. Within this area a birds nest was spotted, however no birds were seen within the nest. Along the edge of the woodland, next to the Lucan road is an area of Cherry Laurel and Sycamore.

Figure 3-7: Broadleaved woodland north of Lucan Road.

3.1.13 Mixed broadleaved/conifer woodland - WD2

A stretch of mixed woodland occurs stretching through the park, alongside the river.

Within this stretch, there were recordings of multiple saplings of mixed species, some manmade pathways, Ivy, Bramble, Harts-tongue fern *Asplenium scolopendrium*, Bindweed *Convolvulus arvensis* and a Greater Butterbur *Petasites hybridus*, Maple *Acer* sp, Hazel *Corylus avellana*, Elder *Sambucus nigra*, Nettle, Cow Parsley, Buttercup, Dogwood, Willow *Salix* sp., Weeping Willow *Salix babylonica*, and some Cypress *Cypressus*. This area also included the invasive species, Winter Heliotrope *Petasites pyrenaicus*, Snowberry *Symphoricarpos*, Cherry Laurel, Spanish Bluebell, Sycamore, Hogweed,

Grey Squirrel *Sciurus carolinensis*, Magpie *Pica pica,* Thrush *Turdus philomelos,* Blackbird *Turdus merula,* Robin *Erithacus rubecula*, Pigeon *Columbidae,* Wren *Troglodytes troglodytes,* Great tit *Parus major, and* Blue tit *Cyanistes caeruleus* were recorded within the mixed forest, however there were no sightings of any bird's nests in this area was recorded in the woodland.

3.1.14 Scattered trees and parkland - WD5

Amenity grassland with scattered trees and benches occurs in the lower half of Griffeen Park and there are two smaller parks along Beech Park Road (east of Esker Cemetery) with this habitat. Trees include Ash, Silver Birch *Betula pendula*, Weeping Willow, Oak *Quercus* spp., Leyland Cypress *Cupressus* × *leylandii*, Sycamore, Rowan, Poplar *Populus*, Horse Chestnut, Beech *Fagus*, Ash, Elder, Lime *Tilia* and Whitebeam *Sorbus aria*.

3.1.15 Hedgerows - WL1

Hedgerows make up some of the boundaries between fields within Griffeen Park. In some hedgerows Hawthorn and Ash are the dominant species, but there are also Holly and Beech hedges and Yew *Taxus baccata* hedges. Other species that were recorded but not dominant include Blackthorn, Field Maple *Acer campestre* and Dog Rose *Rosa canina*. Herbs include Creeping Buttercup, Dock, Meadow Foxtail *Alopecurus pratensis* and Cock's Foot *Dactylis glomerata*.

3.1.16 Treelines - WL2

Treelines border the river, occur along roads (Figure 3-8) and are often seen on the boundary of the amenity grassland. A range of species were recorded and include White Willow, Oak, Copper Beech *Fagus sylvatica f. purpurea*, Ash, Horse Chestnut *Aesculus hoppocastanum*, Hazel *Corylus avellana*, Lime, Alder, Beech, Hawthorn, Spindle *Euonymus europaeus*, Rugosa Rose *Rosa rugosa*, Blackthorn, Wild Cherry *Prunus avium*, Black Poplar *Populus nigra*, Rowan and Sycamore.

A treeline along a tributary to Griffeen River in the southern end of the park is dominated by White Willow, Goat Willow and Alder, with dense Bramble also occurring. Non-woody species include Bur-reed, Bulrush, Fool's-water-cress, Nettle, Hedge Bindweed *Calystegia sepium*, Dog Rose, Common Ragwort *Jacobaea vulgaris*, Thistle and Willowherb.

Figure 3-8: Treeline and stonewall beside the residential area of Cherbury Park.

3.1.17 Riparian woodland - WN5

Riparian woodland occurs in the southwestern end of the park, along the Griffeen River. Ash, White Willow and Grey Willow are dominating; Blackthorn, Bramble, Butterfly-bush *Buddleja davidii*, Elder, Teasel *Dipsacus fullonum*, Nettle and Hogweed are also present.

3.1.18 Wet willow-alder-ash woodland - WN6

There is a wooded area north of N4, next to Griffeen River of wet willow-alder-ash woodland that is dominated by Ash, but other species such as Sycamore and Alder are present. The understorey is dominated by Blackthorn, Butterfly-bush, Bramble, Hogweed, Cow Parsley, Nettle, Herb Robert *Geranium robertianum*, Hart's Tongue Fern *Asplenium scolopendrium*.

In the south, just north of the railway line is a wet willow-alder-ash woodland composed of Willow, Alder and Ash in the canopy and an understorey with dense Bramble. Nipplewort *Lapsana communis*, Cleavers *Galium aparine*, Small-flowered Cranesbill *Geranium pusillum* and Dandelion are also present in the understorey.

3.1.19 Scrub - WS1

Scrub occurs in less managed areas along the proposed cycle route. The largest sections of scrub land occurs in the area between the grand canal and the train tracks alongside the Adamstown Avenue. Woody species include Bramble, some young Willow and Elder, Hawthorn, Field Maple, Guelder Rose *Viburnum opulus*, Purple Willow *Salix purpurea* and Ash. Non-woody species include Sedges *Carex* spp., Red Bartsia, Willowherb, Thistle, False Oatgrass *Arrhenatherum elatius*, Nettle, Dock, Bush Vetch, Perennial Rye-grass, Cock's foot and Creeping Cinquefoil.

3.1.20 Immature woodland - WS2

There is a small area of immature woodland south of Griffeen Avenue with young species of Elm *Ulmus procera*, Alder, White Willow and Ash.

3.2 Protected Species

During the survey an Otter *Lutra lutra* spraint was recorded next to Griffeen River north of Griffeen Avenue. Otter is an Annex II species protected under the EU Habitats Directive, however is not a qualifying interest of a Natura 2000 site within the zone of influence.

No other protected species was noted along the project area.

3.2.1 Flora

The NBDC (2022) records were referenced and no occurrence of protected floral species has been recorded within the site's boundary to date. However several protected plants are located within 2km of the proposed site:

Green Figwort *Scrophularia umbrosa* is an Endangered plant in Ireland and is located along the River Liffey. This plant will not be impacted by the works due to distance from the proposed site.

Yellow Archangel *Lamiastrum galeobdolon subsp. montanum* is a planted listed as Vulnerable in Ireland. This population is located in St Catherine's Woods, Lucan along the Liffey river and will not be impacted by the works due to distance from the proposed site.

Hairy St John's-wort *Hypericum hirsutum* is an Endangered plant in Ireland and a population of this plant is found in Vesey Park, near the Grifeen River. Although it is close in proximity to the proposed project bounrday, it is unlikely this plant will impact as no works will take place within Vesey Park.

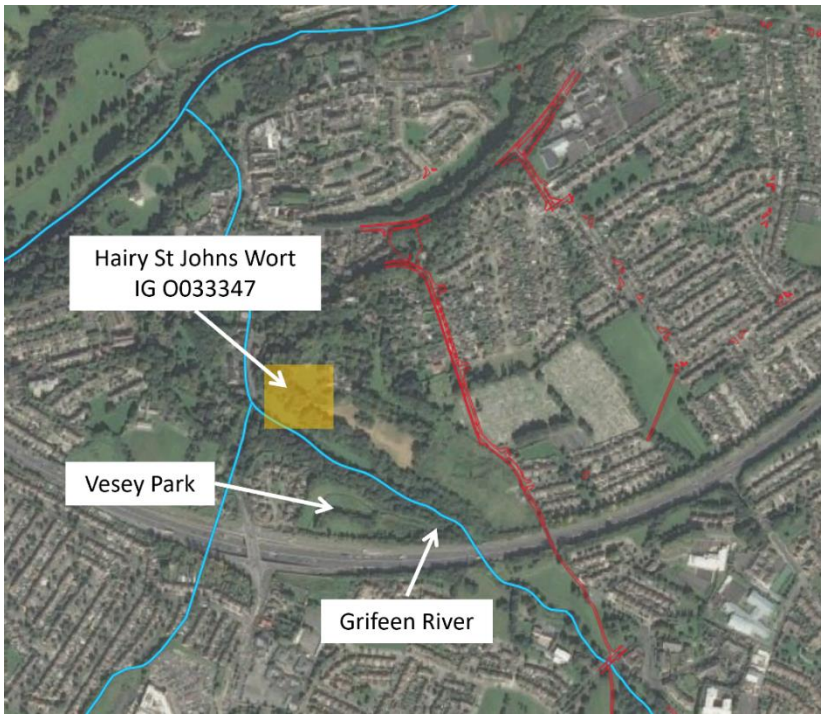

Figure 3-9: Location of Hairy St Johns Wort in relation to proposed project (red)

3.2.2 Fauna

Records of protected fauna including invertebrates, amphibians, fish, birds and mammals collated from the NBDC (2022) database, present within the surrounding four 2km squares (O03H, O03M, O03G, O03L) within the past 10 years are listed in Appendix A. This list includes their level of protection, if they are red or amber listed on the IUCN Red List and the date of the last record of this species at this location.

3.2.2.1 Terrestrial Mammals

A review of records held by the NBDC returned records of the following terrestrial mammal species protected under the Wildlife Acts (As Amended) within the four 2km squares of the proposed site:

- Eurasian Badger *Meles meles*

- Pygmy Shrew *Sorex minutus*
- West European Hedgehog *Erinaceus europaeus*
- *Pine Martin Martes martes*

Otter

Otter Lutra lutra spraint was recorded next to Griffeen River north of Griffeen. No Otter holt was recorded during the survey. The presence of Griffeen River within the park and River Liffey to the north and Grand Canal to the south provide suitable habitat for Otter.

Badger, Hedgehog, and Pygmy Shrew

Badger, Hedgehog *Erinaceus europaeus* and Pygmy Shrew *Sorus minutus* are likely to be present in the Griffeen Valley Park *with suitable habitats present for commuting and foraging*. No signs of these species were observed during the survey and no Badger setts were found.

Pine Marten

Pine Marten have been recorded occassionaly along the River Liffey and also the Grand Canal. The nearest record for this species in relation to the proposed greenway is just south of the Grand Canal in Clondalkin. This mammal is extremely shy and woodland specialists therefore due, to the urban environment and the predominant habitat being grassland, it is unlikely this species is present within the site boundary.

Grey Squirrel

A grey squirrel was observed during the survey in Griffeen Valley Park. This is a non-native mammal to Ireland.

3.2.2.2 Bats

Preliminary Bat Roost Survey

Trees present along the route were inspected from ground level. None of the trees in the woodland north of Lucan Road were identified to have potential roost features (PRFs). They are early mature with smooth bark, ca 20cm in diameter at breast height. They have some Ivy cover, but it is thin and is not creating suitable crevices for bats. Previous assessments of the trees were identified to have low to moderate bat roost potential due to the presence of PRFs, such as hollow stem, thick Ivy growth and broken limbs.

Foraging and Commuting Habitat

The habitats within the site offer commuting and foraging opportunities for bats. Bats use linear features, such as hedgerows/treelines and watercourses, to commute. They also provide foraging habitat along with the open grass fields in the park. The sparse use of lighting within the park further adds to the suitability for bats. The bat habitat connects with the wider landscape via River Liffey in the north and Grand Canal in the south. The site is in the outskirts of the suburban area and connects with the rural landscape. The site provides habitat of **moderate to high suitability for commuting and foraging bats**.

Four bat species have been recorded within the 2km grid squares of the proposed route (NBDC, 2022), which are:

- Daubenton's Bat *Myotis daubentonii*
- Brown Long-eared Bat *Plecotus auritus*,
- Leisler's Bat *Nyctalus leisleri*,
- Common Pipistrelle *Pipistrellus pipistrellus*

Roughan & O'Donovan Consulting Engineers carried out a bat survey in Griffeen Valley Park in June and July 2020 (ROD, 2020). They recorded four bat species commuting and foraging along treelines and hedgerows, and within the open spaces of the amenity grasslands including:

- Common Pipistrelle,

- Soprano Pipistrelle *Pipistrellus pygmaeus*,
- Leisler's Bat
- Daubenton's Bat,

3.2.2.3 Breeding Birds

Several amber listed birds have been recorded on NBDC within the four 2km grid squares along the proposed route, some of which use the same type of habitat found on site and could therefore be found within the site. No amber or red list birds were witnessed during the survey. The NBDC records for endangered bird species within the past ten years are listed below and details are included in Appendix A.

Barn Owl *Tyto alba*
Barn Swallow *Hirundo rustica*
Black-headed Gull *Larus ridibundus*
Common Coot *Fulica a*tra
Common Kestrel *Falco tinnunculus*
Common Kingfisher *Alcedo atthis*
Common Linnet *Carduelis cannabina*
Common Pheasant *Phasianus colchicus*
Common Pochard *Aythya ferina*
Common Redshank *Tringa totanus*
Common Starling *Sturnus vulgaris*
Common Swift *Apus apus*
Common Wood Pigeon *Columba palumbus*
Great Cormorant *Phalacrocorax carbo*
Herring Gull *Larus argentatus*
House Martin *Delichon urbicum*
House Sparrow *Passer domesticus*
Little Egret *Egretta garzetta*
Little Grebe *Tachybaptus ruficollis*
Mallard *Anas platyrhynchos*
Mew Gull *Larus canus*
Mute Swan *Cygnus olor*
Northern Lapwing *Vanellus vanellus*
Peregrine Falcon *Falco peregrinus*
Tufted Duck *Aythya fuligula*

However these protected birds were not observed during the survey, and it is unlikely the habitats around the proposed route provides suitable habitat for protected or listed birds. The presence of woodlands, treelines, hedgerows, and scrub provides good nesting habitat for breeding birds commonly found in the urban areas. The following bird species have been recorded during site visit and are likely breeding in the area:

- Magpie *Pica pica*,
- Thrush *Turdus philomelos*,
- Blackbird *Turdus m*erula,
- Robin *Erithacus rubecula*,
- Pigeon C*olumbida*e,
- Wren *Troglodytes troglodytes*,
- Great tit *P. major*
- Blue tit *Cyanistes caeruleus*,

A breeding bird survey was carried out in 2020 in Griffeen Valley Park as part of a proposed integrated constructed wetland project (ROD, 2020). This survey concluded that the following listed species were confirmed to be breeding or possibly breeding in Griffeen park:

- House Sparrow *Passer domesticus*
- Linnet *Linaria cannabina*
- Robin *Erithacus rubecula*
- Starling *Sturnus vulgaris*
- Grey Wagtail *Motacilla cinerea*

Other amber or red listed birds recorded in the area (but not breeding) from ROD 2020 include:

- Common Gull *Larus canus*
- Herring Gull *Larus argentatus*

- House Martin *Delichon urbicum*
- Lesser Black-backed Gull *Larus fuscus*
- Sparrowhawk *Accipiter nisus*
- Swallow *Hirundo rustica*

Grey Wagtail (*Motacilla cinerea*) and Grey Heron (*Ardea cinerea*) have been noted along the Griffeen River..

3.2.2.4 Amphibians

The reed and large sedge swamps habitat provides suitable spawning habitat for amphibians and the riparian habitat along Griffeen River could support amphibians. Most notably the Common Newt *Triturus vulgaris* and the Common Frog *Rana temporaria* and their nesting habits in ponds, still water ditches and grassy banks.

3.2.2.5 Fish

European Eel *Anguilla anguilla*; Lamprey *Lampetra* spp.; and Atlantic Salmon *Salmo salar* have been recorded in River Liffey near the confluence of the Griffeen River (Kelly et al. 2015). Casual records of Brown trout (fario). Northern Pike and European perch have been noted from those caught in the Griffeen River

The European Eel currently has Critically Endangered IUCN status and is protected under the OSPAR Convention. Lamprey and Atlantic Salmon are currently protected under Annex II and V of the EU Habitats Directive. Atlantic Salmon is currently considered to be Vulnerable under Ireland's Freshwater Fish Red List.

3.2.2.6 Invertebrates

There are two endangered bees reportedly sighted within the site, the Large Red Tailed Bumble Bee and the Moss Carder bee. The former associated with dunes and unimproved grasslands, while the latter which associated with damp areas of mosses and streams. Both of which are currently Near Threatened according to the regional red list of Irish bees. Both species are described to be found in parks and gardens (NBDC 2022)

The presence of plant species of Comfrey, Thistle, Cornflower, Clovers, Bellflowers, Vetch. The invasive threat species groups Maples and Cherry are also of use to these pollinators.

3.3 Invasive Non-native species

A total of four invasive non-native species were recorded during the ecological walkover survey within or adjacent to the site. These species are listed in Table 3-2. None are listed on the Third Schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011, and Grey Squirrel and Cherry Laurel is a High Impact invasive species. Locations are shown in Figure 3-10.

Table 3-2: Invasive species recorded during the ecological walkover survey.

Invasive Species	Third Schedule species	High Impact Species
Giant Butterbur *Petasites japonicus*	No	No
Snowberry *Symphoricarpos albus*	No	No
Cotoneaster spp.	No	No
Cherry Laurel *Prunus laurocerasus*	No	Yes
Sycamore *(Acer pseudoplatanus)*	No	No
Grey Squirrel	Yes	Yes

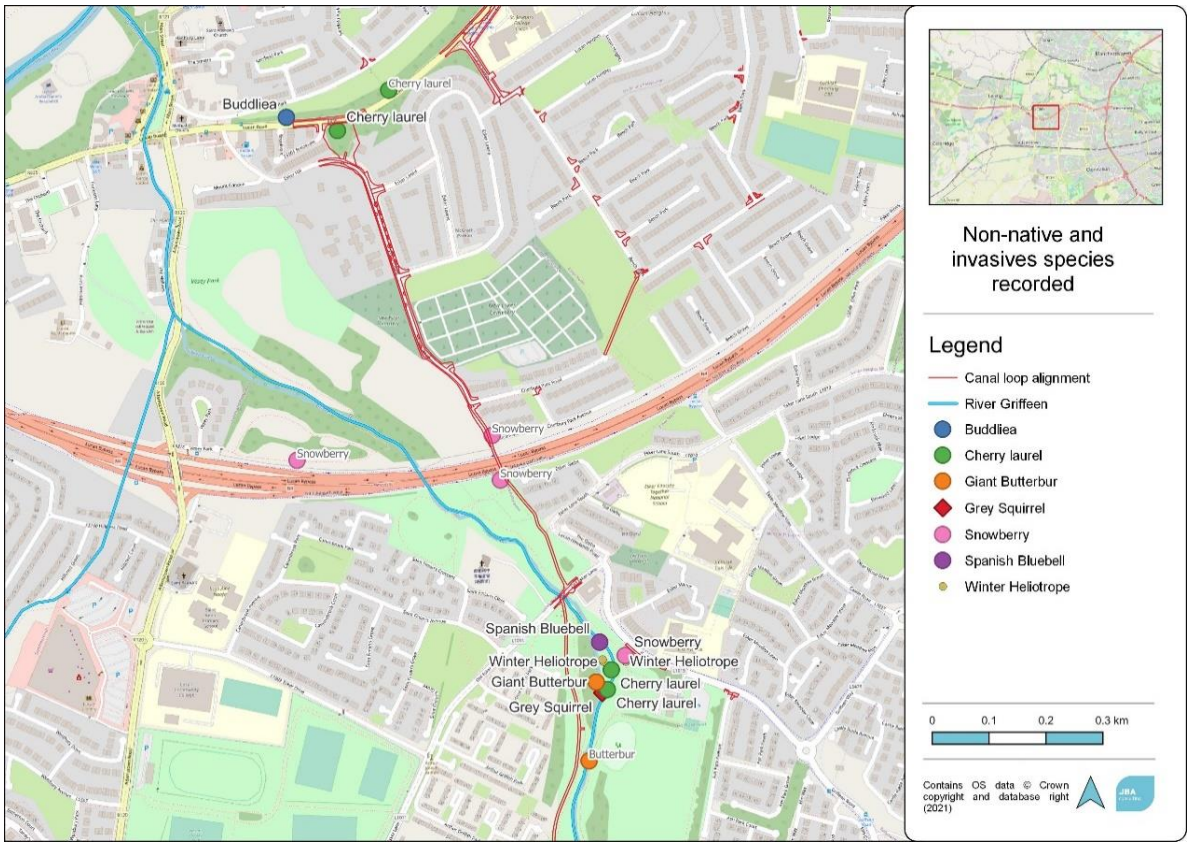

Figure 3-10: Invasive non-native species recorded in the vicinity of the proposed cycle route. (Source: OSM)

Giant Butterbur was recorded on the eastern bank of Griffeen River, next to the playground in Griffeen Valley Park.

Snowberry was recorded at three locations. One stand was present south of N4, to the west of the existing path. Another stand was present just north of N4, in the residential area. The third location was recorded in the treeline north of N4 in Vesey Park. The existing path in Vesey Park is just beside the treeline and proposed upgrading works could disturb the plants and cause further spread of the species.

Cotoneaster, Sycamore and Cherry Laurel were recorded spread in the woodland understorey north of Lucan Road.

A grey squirrel was observed in Griffeen Park. The proposed works will not affect the spread of this mammal.

As a new cycle path is proposed through the woodland north of Lucan Road, the proposed works will require removal of invasive species. The works could cause further spread of the species, both within the woodland but also when moving between sites.

All invasive non-native species on the NBDC (2021) database, present within the relevant 2km squares of the proposed development site, are provided in Appendix A

3.4 Waterbodies within the Vicinity of the Proposed Site

3.4.1 Surface water

The proposed site lies within the Water Framework Directive (WFD) Liffey and Dublin Bay catchment and Liffey_SC_090 sub-catchment (EPA, 2021) (Figure 3-11). Griffeen River runs in a northerly direction through the Griffeen Valley Park and eventually joins River Liffey north east of the proposed cycle route.

The WFD status is Moderate for Griffeen River and for River Liffey at the confluence with Griffeen River (EPA, 2021).

The Grand Canal is located at the southern end of the proposed cycle route and runs in an east west direction. Its WFD status is Good (EPA, 2021).

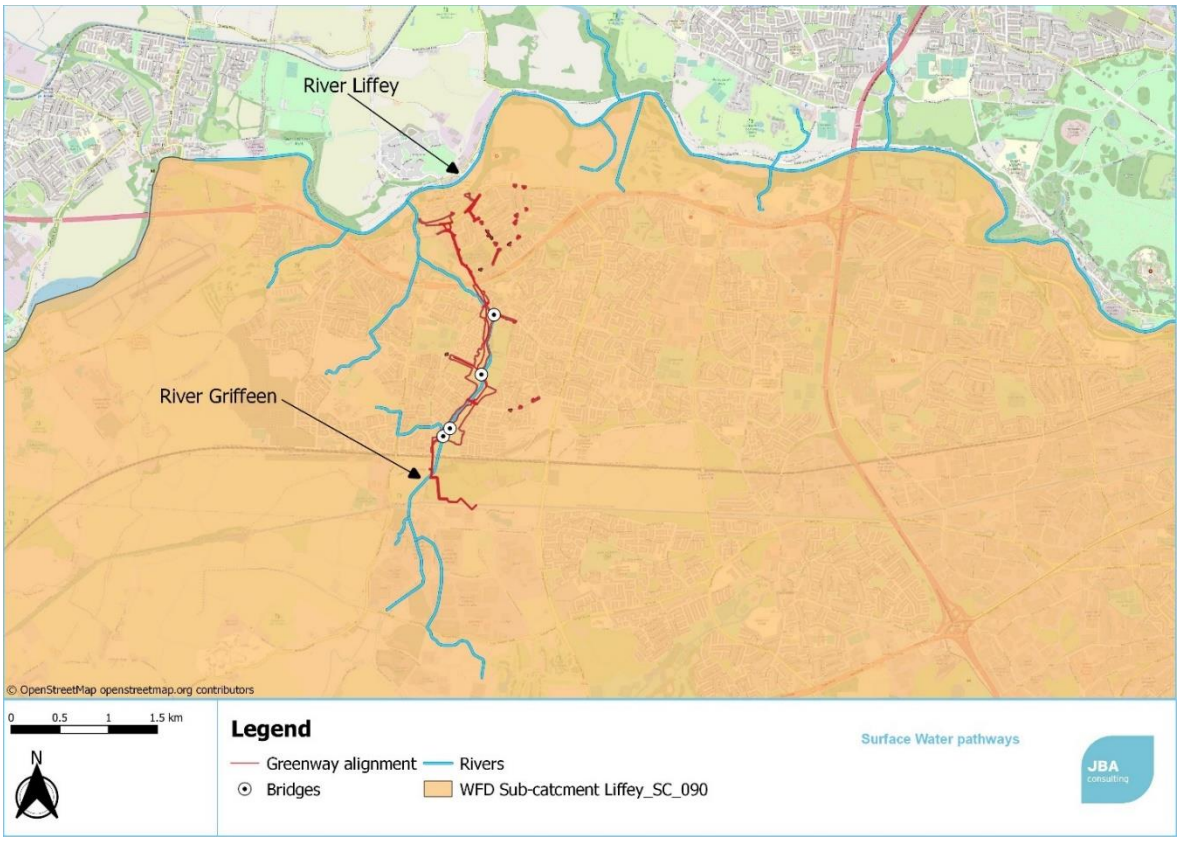

Figure 3-11: Surface waterbodies within the vicinity of the proposed site. (Source: OSM)

3.4.2 Groundwater

The groundwater body underlying the site is Dublin (IE_EA_G_008), which is Good status and Under Review

Groundwater vulnerability, a measure of the likelihood of groundwater contamination occurring, is High to Extreme across most of the site. The site is therefore generally at high risk of groundwater contamination (see Figure 3-12).

The area north and south of road N4 is made up of the Lucan Esker, next to the Griffeen River.

There are no Groundwater Zone of Contribution sites listed by the EPA near the development site, nor any drinking water sites with groundwater abstraction that are not on the groundwater quality monitoring network.

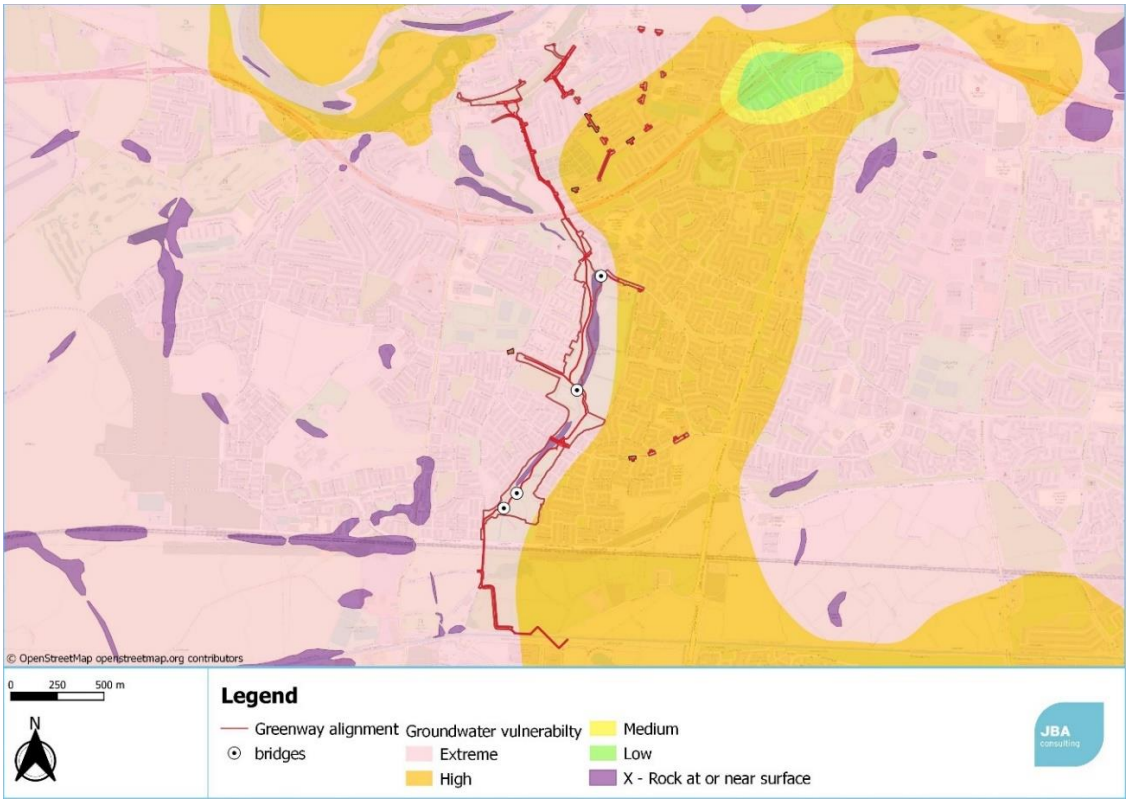

Figure 3-12: Groundwater vulnerability in the vicinity of the site (Source: OSM).

4 Natura 2000 Sites

The DEHLG (2009) guidance identifies that Screening for Appropriate Assessment of a plan or project should consider the following Natura 2000 sites:

- Any Natura 2000 sites within or adjacent to the plan or project area.
- Any Natura 2000 sites within the likely zone of impact of the plan or project. This is dependent on the nature and scale of the plan, with 15km generally recommended for plans, but potentially much less for projects.
- Any Natura 2000 sites that are more than 15km from the plan or project area, but may potentially be impacted upon, for example, through a hydrological connection.

As the scale of proposed works are considered of 'Project' status, Natura 2000 sites within a 5km range of the proposed development were examined, and within a 15km range for those with a hydrological connection and 2km coastal buffers (Brussaard et al., 2016) are added where hydrological connectivity extension is applicable on the basis that there were no source-pathway-receptors identified outside these ranges. The Natura 2000 sites within the range are listed in Table 4-1 below and their location are shown in Figure 4-1.

Table 4-1: Natura 2000 sites located within the Zone of Influence (ZoI) of the proposed development.

Natura 2000 site	Site Code	Approximate direct distance from site
Rye Water Valley / Carton SAC	001398	2.6km
South Dublin Bay and River Tolka Estuary SPA	004024	13.9km
South Dublin Bay SAC	000210	15.0km
North Dublin Bay SAC	000206	17.0km
North Bull Island SPA	004006	17.0km

Figure 4-1: Statutory designated sites within the ZoI of development (Source: OSM)

Rye Water Valley / Carton SAC is located upstream of the proposed route, within 5km and there is potential connectivity via land and air pathways and groundwater pathway. The site is therefore considered further in the assessment.

There is a surface water pathway via the River Griffeen and River Liffey between the proposed route and South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Dublin Bay SAC, North Bull Island SPA. Changes in surface water quality and quantity can be transported via watercourses and end up in Dublin Bay, therefore the potential impact on these Natura 2000 sites is assessed in detail in Section 6.

Site descriptions, Qualifying Interests (QI) and threats/pressures for the above Natura 2000 sites are provided in Table 4-2.

Table 4-2: Site briefs; Qualifying Interests; and project-relevant threats /pressures and their impacts and sources in relation to the Natura 2000 sites within the 5km ZoI (plus hydrological connectivity extension).

Site Name	Brief	Qualifying Interests	Project Relevant Threats / Pressures: Impact (Source)
Rye Water Valley / Carton SAC	The Rye Water Valley / Carton SAC is a river valley site, which includes at its western end a large area of estate woodland and an artificial lake. The eastern section of the site includes a section of railway, canal and aqueduct; it continues as far as Leixlip town. The importance of the site lies in the presence of a number of rare plant and animal species and a rare habitat, i.e. thermal, mineral, petrifying spring. The spring gives rise to a calcareous marsh, the habitat for *Vertigo angustior* and *Vertigo moulinsiana*. This marsh is species-rich and holds a number of plant and insect species which are rare or locally uncommon in Ireland. Four Red Data Book plant species have been recorded from the site, two of which, *Hypericum hirsutum* and *Viola hirta* are legally protected. The woods at the eastern end of the site are also of some ornithological interest (NPWS, 2017a).	- Petrifying Springs* [1130] - Narrow-mouthed Whorl Snail *Vertigo angustior* [1014] - Desmoulin's Whorl Snail *Vertigo moulinsiana* [1016] (NPWS, 2018a)	Continuous urbanisation: Moderate Impact (outside) Dispersed habitation: Low Impact (outside) (Full list of threats / pressures - NPWS, 2017a)
South Dublin Bay and River Tolka Estuary SPA (004024)	The South Dublin Bay and River Tolka Estuary SPA includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included. The site is important for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex. An internationally important population of Light-bellied Brent Goose *Branta bernicla hrota* occurs regularly and the site is of national importance for a further nine wintering bird species. Furthermore, the site supports a nationally important colony of breeding Common Tern *Sterna hirundo* and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit *Limosa lapponica*, Common Tern, Arctic Tern *Sterna paradisaea* and Roseate Tern *S. dougallii*. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site. (NPWS, 2015a)	Light-bellied Brent Goose *Branta bernicla hrota* [A046] Oystercatcher *Haematopus ostralegus* [A130] Ringed Plover *Charadrius hiaticula* [A137] Grey Plover *Pluvialis squatarola* [A141] Knot *Calidris canutus* [A143] Sanderling *Calidris alba* [A144] Dunlin *Calidris alpina* [A149] Bar-tailed Godwit *Limosa lapponica* [A157] Redshank *Tringa totanus* [A162] Black-headed Gull *Chroicocephalus ridibundus* [A179] Roseate Tern *Sterna dougallii* [A192] Common Tern *Sterna hirundo* [A193] Arctic Tern *Sterna paradisaea* [A194] Wetland and Waterbirds [A999] (NPWS, 2015b)	Roads, motorways Medium (outside) Urbanised areas, human habitation High (outside) Discharges High (inside) (Source: (NPWS, 2017d)

Site Name	Brief	Qualifying Interests	Project Relevant Threats / Pressures: Impact (Source)
South Dublin Bay SAC (000210)	This intertidal site extends from the South Wall at Dublin Port to the West Pier at Dun Laoghaire, a distance of c. 5 km. At their widest, the intertidal flats extend for almost 3 km. The seaward boundary is marked by the low tide mark, while the landward boundary is now almost entirely artificially embanked. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. A number of small streams and drains flow into the site. The proximity of the site to Dublin City results in it being a very popular recreational area. It is also important for educational and research purposes. The site possesses a fine and fairly extensive example of intertidal flats. Sediment type is predominantly sand, with muddy sands in the more sheltered areas. A typical macro-invertebrate fauna exists. The bay has the largest stand of Zostera on the east coast and supports part of the important wintering waterfowl populations of Dublin Bay. It regularly has an internationally important population of Light-bellied Brent Goose, plus nationally important numbers of at least a further 6 species, including Bar-tailed Godwit. The bay is a regular autumn roosting ground for significant numbers of Sterna terns, including Roseate Tern. (NPWS 2018b)	Tidal Mudflats and Sandflats [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110] (NPWS, 2013a)	Urbanised areas, human habitation High (outside) Marine water pollution Medium (both) Roads, motorways Low (outside) Discharges Medium (both) Accumulation of organic material High (inside) (Source: NPWS, 2018b)
North Bull Island SPA (004006)	The site covers all of the inner part of north Dublin Bay. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses. The SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. The site supports internationally important populations of three species, Light-bellied Brent Goose, Black-tailed Godwit *Limosa limosa* and Bar-tailed Godwit. The site is one of the most important in the country for Light-bellied Brent Goose. A further of 14 species have populations of national importance. North Bull Island is a Ramsar Convention site, and part of the North Bull Island SPA is a Statutory Nature Reserve and a Wildfowl Sanctuary. (NPWS, 2014)	Light-bellied Brent Goose *Branta bernicla hrota* [A046] Shelduck *Tadorna tadorna* [A048] Teal *Anas crecca* [A052] Pintail *Anas acuta* [A054] Shoveler *Anas clypeata* [A056] Oystercatcher *Haematopus ostralegus* [A130] Golden Plover *Pluvialis apricaria* [A140] Grey Plover *Pluvialis squatarola* [A141] Knot *Calidris canutus* [A143] Sanderling *Calidris alba* [A144] Dunlin *Calidris alpina* [A149] Black-tailed Godwit *Limosa limosa* [A156] Bar-tailed Godwit *Limosa lapponica* [A157]	Roads, motorways Medium (outside) Continuous urbanisation Medium (outside) Discharges Medium (both) (Source: NPWS, 2017e)

Site Name	Brief	Qualifying Interests	Project Relevant Threats / Pressures: Impact (Source)
		Curlew *Numenius arquata* [A160] Redshank *Tringa totanus* [A162] Turnstone *Arenaria interpres* [A169] Black-headed Gull *Chroicocephalus ridibundus* [A179] Wetland and Waterbirds [A999] (NPWS, 2015c)	
North Dublin Bay SAC (000206)	The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5km long and 1km wide and runs parallel to the coast between Clontarf and Sutton. The sediment which forms the island is predominantly glacial in origin and siliceous in nature. Between the island and the mainland there occurs two sheltered intertidal areas. The seaward side of the island has a fine sandy beach. A substantial area of shallow marine water is included in the site. Site possesses an excellent diversity of coastal habitats. The North Bull Island dune system is one of the most important systems on the east coast and is one of the few in Ireland that is actively accreting. It possesses extensive and mostly good quality examples of embryonic, shifting marram and fixed dunes, as well as excellent examples of humid dune slacks. Both Atlantic and Mediterranean salt marshes are well represented, and a particularly good marsh zonation is shown. The salt marshes grade into mudflats and sandflats, some of which are dominated by annual Salicornia species. The site has five Red Data Book vascular plant species and four Red Data Book bryophyte species and is one of the most important sites for wintering waterfowl in Ireland. It is also an important site for some invertebrates of national importance. (NPWS, 2017c)	Mudflats and sandflats not covered by seawater at low tide [1140] Annual vegetation of drift lines [1210] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows *Glauco-Puccinellietalia maritimae* [1330] Mediterranean salt meadows *Juncetalia maritimi* [1410] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes)* [2130] Humid dune slacks [2190] Petalwort *Petalophyllum ralfsii* [1395] (NPWS, 2013b)	Urbanised areas, human habitation High (outside) Discharges High (inside) (Source: NPWS, 2017c)

* = priority Annex I habitat

= indirect threat via the increase in the local populace and recreational activities as a result of the development.

5 Other Relevant Plans and Projects

5.1 In-combination Effects

As part of the Screening for an Appropriate Assessment, in addition to the proposed works, other relevant projects and plans in the region that may induce cumulative impacts must also be considered at this stage.

The following projects or plans were identified as potential sources of cumulative impacts:

- South Dublin County Council Development Plan 2016 - 2022
- Greater Dublin Drainage Strategy
- River Basin Management Plan for Ireland 2018-2021
- Planning Applications

5.2 Plans

5.2.1 South Dublin County Development Plan 2016-2022

The proposed development is in line with the South Dublin County Development Plan 2016-2022. It is an objective of the Council to re-balance priorities towards sustainable modes of transportation by prioritising walking and cycling facilities.

- TM3 Objective 1: To create a comprehensive and legible County-wide network of cycling and walking routes that link communities to key destinations, amenities and leisure activities with reference to the policies and objectives contained in Chapter 9 (Heritage, Conservation and Landscape) particularly those that relate to Public Rights of Way and Permissive Access Routes.
- TM3 Objective 2: To ensure that connectivity for pedestrians and cyclists is maximised in new communities and improved within existing areas in order to maximise access to local shops, schools, public transport services and other amenities, while seeking to minimise opportunities for anti-social behaviour and respecting the wishes of local communities.
- TM3 Objective 3: To ensure that all streets and street networks are designed to prioritise the movement of pedestrians and cyclists within a safe and comfortable environment for a wide range of ages, abilities and journey types.
- TM3 Objective 4: To prioritise the upgrade of footpaths, public lighting & public realm maintenance and supporting signage on public roads/paths where a demonstrated need exists for busy routes used by runners & walkers.
- TM3 Objective 5: To provide that planning permissions granted for the development of all new schools or for existing schools where 25% or greater expansion in classrooms is proposed, should include a requirement for the provision of cycle paths from the school to join the nearest cycle network, where feasible.
- TM3 Objective 6: To ensure that all walking and cycling routes have regard to pertaining environmental conditions and sensitivities and incorporate appropriate avoidance and mitigation measures as part of any environmental assessments.

In addition, the extension of the existing cycleway in Griffeen Valley Park to Lucan is included as part of the Six Year Cycle Network Programme in the CDP.

The Plan also aims to protect and enhance surface water quality, to support, improve and protect Natura 2000 sites, and to develop an integrated Green Infrastructure network to enhance biodiversity, provide accessible parks, open spaces and recreational facilities (SDCC, 2016a). The plan also states that work will be in conjunction with Irish Water to protect existing water and drainage infrastructure, to promote investments aiming to support environmental protection and facilitate the sustainable growth of the county (SDCC, 2016a).

A Screening for Appropriate Assessment was carried out on the plan. This concluded that there are no likely significant direct, indirect or secondary impacts of the project on any Natura 2000 sites (SDCC, 2016b), therefore the SDCC Development Plan is not anticipated to contribute to cumulative or in-combination effects.

5.2.2 Greater Dublin Drainage Strategy

The Greater Dublin Drainage Strategy sets out the strategic planning for the development of waste water treatment in the Greater Dublin area in relation to the Ringsend Waste Water Treatment Plant (WWTP) Upgrade, Greater Dublin Drainage Project and associated wastewater network drainage projects (Irish Water, 2018). The Ringsend WWTP Upgrade includes plans to expand the WWTP to its ultimate capacity, together with associated network upgrades required. The Greater Dublin Drainage Project is planned to relieve both the Ringsend WWTP and network loading by construction of a new WWTP at Clonshaugh, an orbital sewer and provision of an outfall pipe discharging 1km north east of Ireland's Eye.

The Ringsend WWTP upgrade is in progress and carried out in stages, with an increased capacity of 400,000 PE by the first half of 2021 and the ultimate capacity of 2.4 million PE to be in operation by 2024 (Irish Water, 2021).

The Greater Dublin Drainage Project is strategically important to the Dublin Region in that it will provide capacity for residential and commercial growth (Irish Water, 2018).

5.2.3 River Basin Management Plan for Ireland 2018-2021 / 2022-2027

The 2nd cycle River Basin Management Plan (RBMP) for Ireland 2018-2021 sets out the actions that Ireland will take to improve water quality and achieve 'good' ecological status in water bodies (rivers, lakes, estuaries and coastal waters) by 2021 (DoHPLG, 2018a). Changes from previous River Basin Management Plans is that all River Basin Districts are merged as one national River Basin District. The Plan provides a more coordinated framework for improving the quality of our waters — to protect public health, the environment, water amenities and to sustain water-intensive industries, including agri-food and tourism, particularly in rural Ireland.

The first cycle of River Basin Management Plans included the Eastern River Basin District - River Basin Management Plan 2009 – 2015 (WFD, 2010). The plans summarised the waterbodies that may not meet the environmental objectives of the WFD by 2015 and identified which pressures are contributing to the environmental objectives not being achieved. The plans described the classification results and identified measures that can be introduced in order to safeguard waters and meet the environmental objectives of the WFD;

- Prevent deterioration of water body status.
- Restore good status to water bodies.
- Achieve protected areas objectives.
- Reduce chemical pollution of water bodies

The River Basin Management Plan for Ireland (2018-2021) outlines the new approach that Ireland will take to protect our waters over the period to 2021. It builds on lessons learned from the first planning cycle in a number of areas:

- stronger and more effective delivery structures have been put in place to build the foundations and momentum for long-term improvements to water quality
- a new governance structure, which brings the policy, technical and implementation actors together with public and representative organisations. This will ensure the effective and coordinated delivery of measures.

Ireland's third River Basin Management Plan 2022-2027 was out for public consultation until March 31st 2022. The 3rd cycle draft Catchment Reports were published in August 2021. The draft Catchment Reports provides a summary of the water quality assessment outcomes for respective catchments, including status and risk categories, significant threats and pressures, details on protected areas and a comparison between cycle 2 and cycle 3.

The third cycle draft Catchment Report for Liffey and Dublin Bay Catchment (EPA, 2021) identified that between Cycles 2 and 3 there has been an overall small improvement in the The overall change in quality between Cycles 2 and 3 include 2 waterbodies that have achieved High Status, which is an increase of one, 56 which achieve Good Status has been increased by four , 23 achieving a Moderate Status which is a decrease in four waterbodies, and 24 achieving a Poor Status an increase of 1 between cycles. There are no Bad Status waterbodies as of Cycle 3, which is a decrease of one from

Cycle 2The main significant pressures are aquaculture, anthropogenic, atmospheric, historically polluted sites and waste pressures followed by agriculture, urban run-off and forestry.

5.3 Other Projects

There are several other recent developments or planning applications in the vicinity of the proposed project. Larger development planning applications in the near vicinity from the last three years that have been granted permission are listed below. Applications for home extensions, internal alterations and retention are not considered. Identified projects are listed in Table 5-1 overleaf.

Table 5-1: Projects granted planning permission since 2018 in vicinity of proposed site.

Planning Application Reference	SDZ20A/0021
Development address	In the townlands of Adamstown, Grange, Kishoge, Clonburris Little & Cappagh, Co. Dublin
Description: 10 year permission for roads and drainage infrastructure works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019) to form part of the public roads and drainage networks providing access and services for the future development of the southern half of the overall Strategic Development Zone (SDZ) lands; the roads infrastructure works are for the construction of c. 4.0km of a new road, known as Clonburris Southern Link Street, generally consisting of 7m wide single carriageway, plus on either side of the carriageway landscaped verges, 1.75m wide off-road cycle tracks and 2m wide footpath including public lighting, trees, 288 on-street car parking spaces (including 26 disabled parking spaces), pedestrian crossings, bus stops, a number of vehicular access spurs to facilitate future development of adjoining lands, a total of 8 new junctions (including 3 junctions to facilitate future road developments within the SDZ; 2 junctions with proposed local access roads and 3 new junctions with Hayden's Lane, Lynch's Lane and Ninth Lock Road); alterations to the existing public roads Newcastle Road (R120), Hayden's Lane Access Road, Hayden's Lane, Lynch's Lane, Grange Castle Road (R136), Fonthill Road (R113) and Ninth Lock Road arising from new junctions with the Clonburris Southern Link Street consisting of reconfiguration of a c.165m long section of Newcastle Road (R120) including road widening and revisions to layout of junction with Hayden's Lane Access Road; incorporation of Hayden's Lane Access Road into proposed Clonburris Southern Link Street; provision of new junction with Hayden's Lane and Clonburris Southern Link Street; incorporation of a c. 26m long section of Lynch's Lane into proposed Southern Link Street and provision of a new junction with Clonburris Southern Link Street; reconfiguration of a c. 260m long section of Grange Castle Road, including road widening and replacement of existing roundabout with signalised junction; reconfiguration of a c. 250m long section of Fonthill Road, including road widening and replacement of existing roundabout with signalised junction; reconfiguration of a c.125m long section on Ninth Lock Road including road widening and provision of a new junction with Clonburris Southern Link Street; construction of 2 local access roads, consisting of c. 110m long road extending north from Clonburris Southern Link Street and providing access to proposed foul pumping station and generally consisting of a 6m wide single carriageway plus on either side of the carriageway 2m wide footpath including public lighting , 2 set-down parking spaces and vehicular access to proposed foul water pumping station; north/south Link Street (c. 240m in length) extending north from southern Link Street to the Kildare-Cork railway line and generally consisting of a 7m wide single carriageway plus on either side of the carriageway 1.3m wide landscaped verge, 1.75m wide off-road cycle lane, 2m wide footpath including public lighting and 2 vehicular access spurs to facilitate future development of adjoining lands; the drainage infrastructure works include 8 attenuation systems (with outfalls to Griffeen River, Kilmahuddrick Stream and existing storm sewers) including 4 ponds , 2 modular underground storage systems and 2 detention basins combined with modular underground storage systems all adjacent to proposed Clonburris Southern Link Street; surface water drainage culverts to existing watercourses; flood water compensation area adjacent to Griffeen River; surface water drainage and water supply trunk infrastructure within proposed road corridors; wastewater infrastructure including a foul pumping station and pipe network within proposed road corridors to facilitate drainage connections to future wastewater drainage infrastructure within the adjoining SDZ lands (including future Irish Water pumping station) and to connect to the existing sewer network in Cappaghmore housing estate; ducting for public electrical services and utilities and the diversion of existing utilities is provided for within the proposed road corridor.	
Final Decision on Application	Grant permission
Decision Date	12-Aug-2021

5.4 Summary

The County Development Plan, RBMP and projects near the proposed project are considered in combination with the currently proposed project in the Screening Assessment section below.

6 Screening Assessment

6.1 Introduction

This screening exercise will focus on assessing the likely adverse effects of the project on the Natura 2000 site identified in Section 4 above.

This section identifies the potential impacts which may arise as result of the proposed project. It then goes on to identify how these impacts could potentially impact on Natura 2000 sites listed in Table 4-1. The significance of potential impacts is also assessed, with any potential in-combination effects also identified.

The Natura 2000 sites to be assessed are:

- Rye Water Valley/Carton SAC (001398)
- South Dublin Bay and River Tolka Estuary SPA (004024)
- South Dublin Bay SAC (000210)
- North Bull Island SPA (004006)
- North Dublin Bay SAC (000206)

6.2 Assessment Criteria

6.2.1 Description of the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 sites

Potential adverse impacts that could cause a significant effect on the qualifying interests of the Natura 2000 sites, during the construction and operational phases of the project, will impact on the sites via surface water pathways, groundwater pathways and land and air pathways. Surface water pathways can impact on surface water quality and surface water dependent habitat quality. Groundwater pathways can impact on groundwater quality and quality of groundwater dependent habitats. Land and air pathways can impact by release or discharges of sediment or chemicals to surface or groundwater.

The proposed project is not anticipated to impact on the qualifying interests of any of the identified SACs or SPAs in the Zone of Influence. The rationale for excluding impacts via the main pathways is given in more detail in the following section.

6.2.2 Surface Water Pathways

There is a surface water pathway between the proposed route and South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Bull Island SPA and North Dublin Bay SAC via Griffeen River and River Liffey.

Rye Water Valley/Carton SAC is located upstream of the proposed route and would therefore not be impacted via surface water pathway.

Construction phase

This may produce pollutants (e.g. hydrocarbon spillages) and silt runoff from the site. Where the proposed route goes through Griffeen Valley Park it will involve widening of existing paths and bridges will be replaced crossing the Griffeen River.

The paths to be widened and/or constructed are a few meters away (generally >10m) from the river. Potential runoff during heavy rainfall would run over vegetated grass strips for several meters before potentially entering the river, thus reducing the amount of silt and pollutants entering the surface water system. Further dilution and settlement of silt would occur within the surface waterbodies before reaching any of the Natura 2000 sites in Dublin Bay, which is approximately 21km downstream from the site via surface water.

Where new bridges are to be constructed crossing the Griffeen River, the existing bridges will be removed and a wider, prefabricated bridge will replace it. To minimise the environmental impact on the watercourse, where possible it is proposed to retain and modify the existing concrete abutments to carry the additional load of the replacement bridge. A detailed abutment design and bridge replacement methodology will follow the completion of ground investigations. An offset of approximately 2m from the edge of abutment to Top of Bank (TOB) will provide adequate space to install protective measures to control any accidental discharge or run-off of construction materials down the slope and into the watercourse below. A temporary working platform will be constructed to support the crane which will be used to both remove the existing bridge deck and lift the replacement deck in place. A Construction Environmental Management Plan (CEMP) will be prepared in conjunction with the appointed contractor to agree appropriate additional environmental mitigation measures to ensure the watercourse is protected. This method has been devised to protect the water course and easily replace the existing bridges.

Therefore, given the temporary nature of the construction phase of the project (approximately 6 months), the limited amount of silt/pollutants that could potentially enter the surface water, as well as the distance to any Natura 2000 site, a significant impact on any of the Qis is not expected for South Dublin Bay and River Tolka Estuary SPA, South Dublin Bay SAC, North Bull Island SPA and North Dublin Bay SAC.

Operational Phase

The proposed cycle route will be along existing roads and paths with surface drainage systems in place. The widening of paths within Griffeen Valley Park will result in vegetation (grassland) being replaced with hard surface. This will result in an increase in surface water runoff with majority of the surface water being drained through the soil but will drain to the nearest watercourses (i.e. River Griffeen). Any potential pollutant entering the river will be imperceptible and impact on water quality will be negligible. Therefore, no significant impacts are anticipated on any of the Natura 2000 sites.

In summary it is assessed that surface water impacts during construction and operation are not anticipated to have a significant impact on any of the Natura 2000 sites. Table 6-1 provides a summary of the screening rationale for the surface water pathway. Surface water pathways to Natura 2000 sites are seen in Figure 6-1.

Table 6-1: Surface water pathway screening summary for Natura 2000 sites

Natura 2000 sites	Screening outcome for Surface Water Pathway	Rationale
Sites with surface water pathway: South Dublin Bay and River Tolka Estuary SPA (004024) South Dublin Bay SAC (000210) North Bull Island SPA (004006) North Dublin Bay SAC (000206) **Site with no surface water pathway:** Rye Water Valley / Carton SAC (001398)- located upstream of works.	No significant effect (Screened out)	Distance / high level of dilution by larger freshwater system and transitional / coastal waters. Vegetated grass strips between works and the watercourse. Temporary nature of construction phase. Appropriate operational surface water drainage systems.

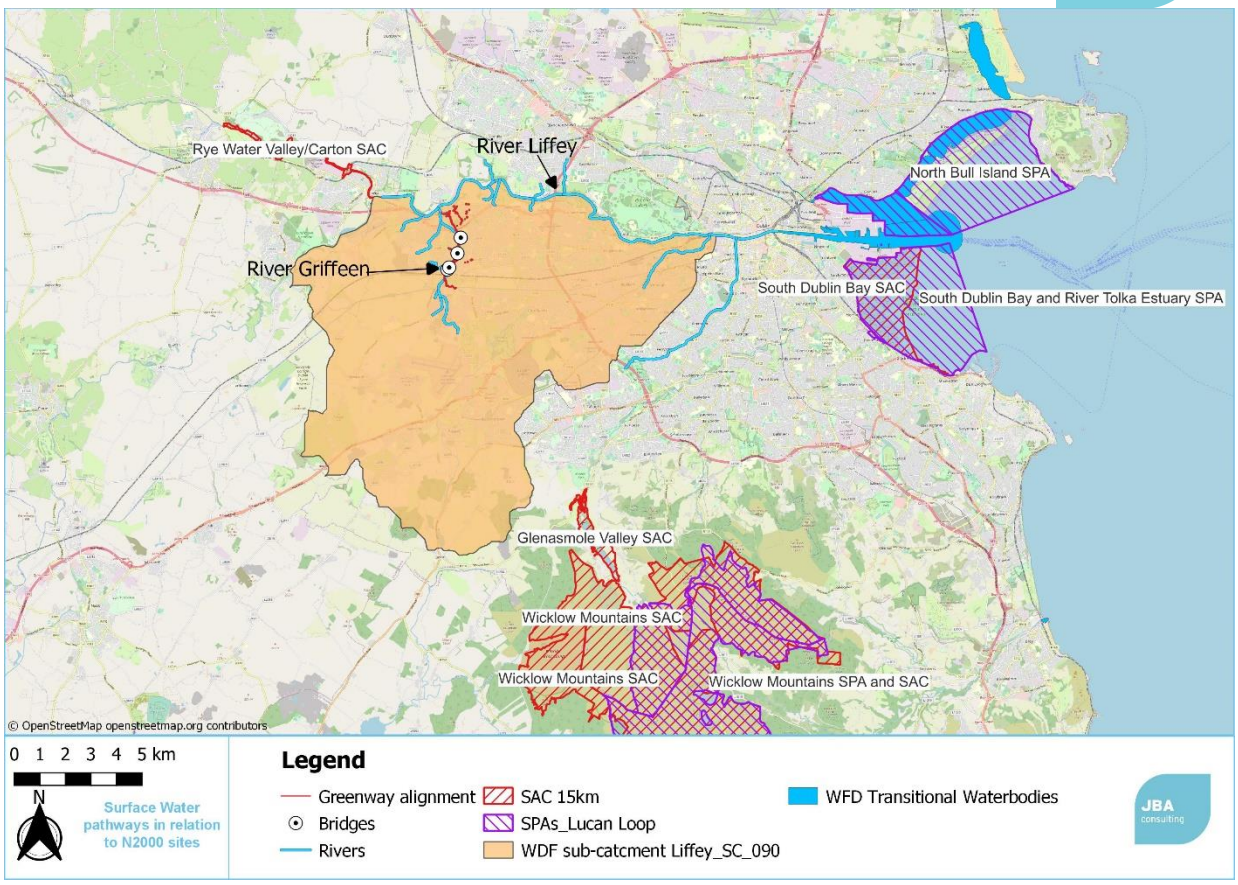

Figure 6-1: Site location and Natura 2000 sites, with surface water sub-catchment (Source, OSM).

6.2.3 Groundwater pathways

The proposed route is located within Dublin (IE_EA_G_008) groundwater body (EPA, 2021). The proposed cycle rout passes through Lucan Esker and the aquifer vulnerability of the site is high to extreme (Figure 3-12) and the Bedrock is Moderately Productive only in local zones.

The bedrock is dark limestone and shale and sub-soil consists of till derived from lime stone and alluvium along Griffeen River (GSI, 2021).

The proposed cycle route will require excavations at depths of 250mm and trench excavations for ducting will be at a depth of 600mm. These are shallow excavations and any potential pollutant entering the groundwater would discharge to the nearest watercourse (Griffeen River or River Liffey) that are between the proposed route and the Natura 2000 sites where it would be further diluted. Therefore, negative impacts on the Natura 2000 sites are not anticipated during the construction phase. Additionally Nature 2000 sites lie upgradient and upstream of the site.

During the operation phase no pollutants are expected to be produced therefore no adverse impacts to any Natura 2000 site through groundwater pathways anticipated during the operational phase.

Adverse impacts on any Natura 2000 sites are not expected via a groundwater pathway. Table 6-2 gives a summary of the screening rationale for the groundwater pathway.

Table 6-2: Ground water pathway screening summary for Natura 2000 sites

Natura 2000 sites	Screening outcome for Groundwater Pathway	Rationale
Sites with ground water pathway: Rye Water Valley / Carton SAC (001398) **Sites with no groundwater pathway:** South Dublin Bay and River Tolka Estuary SPA (004024) South Dublin Bay SAC (000210) North Bull Island SPA (004006) North Dublin Bay SAC (000206)	No significant effect (Screened out)	Natura 2000 site upgradient and upstream Shallow excavations. Groundwater would discharge to closest watercourse and be diluted. Appropriate operational surface water drainage systems.

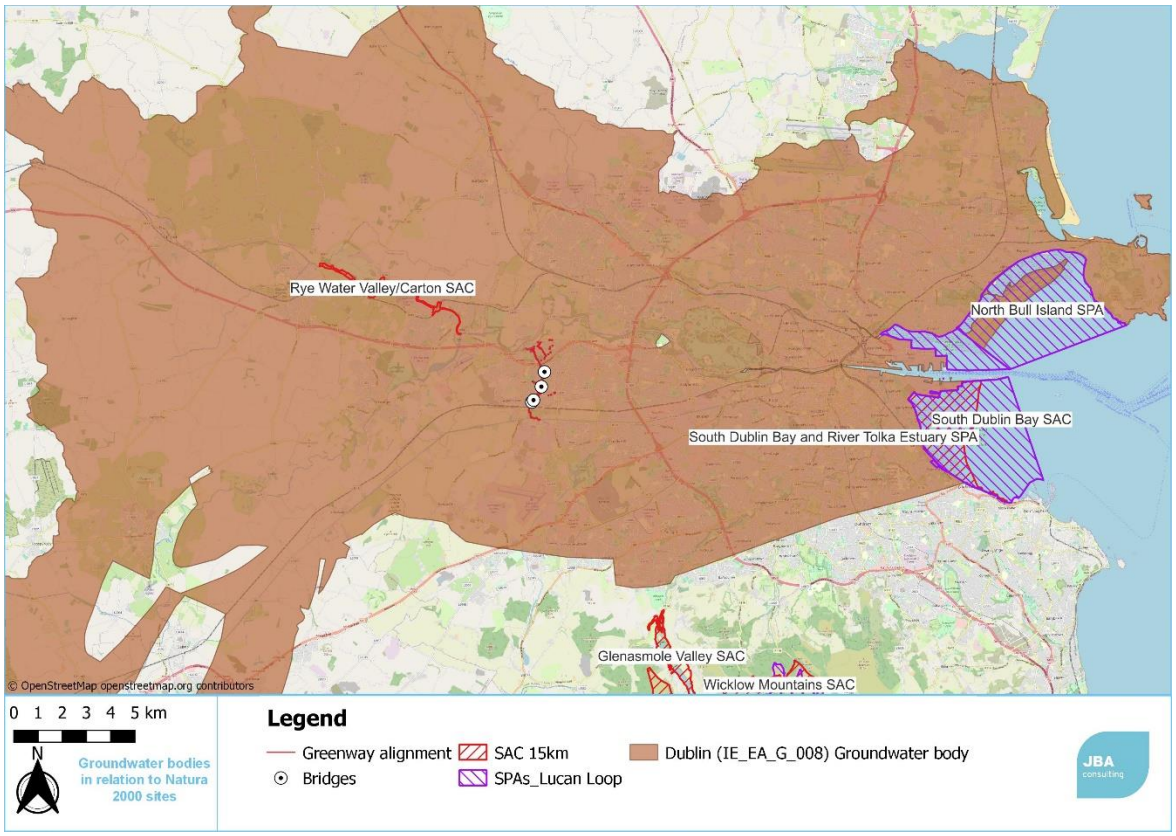

Figure 6-2: Groundwater body connection to proposed site and Natura 2000 sites (Source, OSM)

6.2.4 Land and Air pathways

The loss or degradation of supporting habitats outside the identified Natura 2000 sites via land- and air-based impacts could have potential adverse impacts on a number of the QIs associated with these Natura 2000 sites.

Land and air pathways are assessed separately below.

Land (physical on-site and noise disturbance)

Direct physical impacts and indirect impacts, such as visual and noise impacts, do not have the potential to physically disturb habitats as well as the floral and faunal species within the Natura 2000 sites due to the distance from the proposed site to the Natura 2000 sites.

Griffeen Valley Park may provide foraging habitat for mobile wintering birds of the SPA's within the ZoI, such as Light-bellied Brent Goose *Branta bernicla hrota* and Black-headed Gull *Chroicocephalus ridibundus.* Light-bellied Brent Goose tend to feed on amenity grasslands in for example Dublin city parks, and Black-headed Gull also use parks to congregate however, using existing data for this species from NBDC website, it has not been recorded in Griffeen Valley Park (NBDC, 2021). Furthermore, the site is approximately 14km from the nearest SPA and the works will be temporary in nature and will not significantly increase the disturbance caused by the public using the park. Therefore, impacts via land pathways in terms of ex-situ supporting habitats are not anticipated to have a significant impact on any of the Natura 2000 sites.

Air Pollution

Dust release and vehicle emissions can travel considerable distances and could potentially affect the QIs for which Rye Water Valley / Carton SAC is designated. All other Natura 2000 sites are outside of the ZoI for air pollution.

The distance and direction of travel is dependent upon wind speed and direction. The prevailing wind in the area is south-west (based on measurements carried out between 2010-2021 at Casement Aerodrome (Windfinder.com, 2021)). This means that on average winds will blow away from the closest Natura 2000 site Rye Water Valley / Carton SAC. The urban setting of the proposed route also provides barriers, such as buildings and treelines, which will prevent further dispersal of particles.

There will be an increase in local traffic attending the site during construction, resulting in an increase in NOx emissions, however vehicular emissions and dust emissions are not anticipated to significantly impact the QIs of the Natura 2000 site due to the relatively small size and temporary nature of proposed works and distance between proposed site and Natura 2000 sites. The improvement of the cycle routes may reduce the amount of vehicular traffic with more people cycling in the long term and thus improve the air quality. Table 6-3 summarises the screening rationale for Land and Air pathways.

Table 6-3: Land and air pathway screening summary for Natura 2000 sites

Natura 2000 sites	Screening outcome for Land and Air Pathway	Rationale
• Rye Water Valley / Carton SAC (001398) **Not within land & air pathway zone of influence:** • South Dublin Bay and River Tolka Estuary SPA (004024) • South Dublin Bay SAC (000210) • North Bull Island SPA (004006) • North Dublin Bay SAC (000206)	No significant effect (Screened out)	No physical, visual or noise disturbance due to the distances between the site and the Natura 2000 sites and the temporary nature of the proposed works. The Natura 2000 site within the ZoI of air pathway is not in the general direction of the prevailing wind. Presence of barriers preventing dispersal of dust particles. Reduction of vehicular traffic in the long term.

6.2.5 In-combination Impact

In assessing plans and projects outlined in Section 5, the projects that could have an in-combination impact along with the proposed site are those that are in close proximity to the proposed site and have hydrological connections to the Griffeen River. The only other project in the vicinity that is considered cumulatively with the proposed project is SDZ20A/0021.

Application SDZ20A/0021 involves roads and drainage infrastructure works as approved under the Clonburris Strategic Development Zone Planning Scheme for the future development of the southern half of the overall Strategic Development Zone lands. There is a surface water pathway present between the project site and Dublin Bay Natura 2000 sites via Griffeen River. A hydrological qualitative risk assessment report was prepared using a conceptual site model. The results of the assessment indicate that surface water runoff from the development, during both construction and operation, will not result in any perceptible impact on water quality in downstream receiving waters in Dublin Bay. The assessment also considered in-combination effects with other projects and concluded no perceptible impact on water quality. The conclusion in the AA Screening report is therefore that there will be no significant effect on any Natura 2000 site from the proposed infrastructure works.

The listed county development and catchment plans have been subject to Stage 2 Appropriate Assessment. The conclusion from these assessments is that the projects will have a negligible impact on the QIs of any Natura 2000 site with the implementation of proposed mitigation measures.

As the proposed project is not anticipated to have any significant impact on QIs or conservation objectives on any Natura 2000 site and based on the screening statements of the above plans and planning applications, there is no potential for other plans or projects to act in combination with it to result in likely significant effects on Natura 2000 sites.

6.2.6 Summary

Due to the location of the proposed site, the temporary nature of the works and its distance to the Natura 2000 sites within the ZoI, the proposed project is not anticipated to have a significant impact via surface water, groundwater and land and air pathways to any Natura 2000 site.

6.2.7 Description of likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 sites

Project Elements	Comment
Size and scale	The proposed development will primarily run along the existing roads or footpaths. Of the total 4.2km length of the scheme, approximately 3.54km will be through parks or other green areas, mostly along existing footpaths, Secondary links on existing roads is approximately 4.29km.. New cycle infrastructure is to be provided through Griffeen Valley Park from the Hayden's Lane entrance to the N4 footbridge. The infrastructure in place from Hayden's Lane to Griffeen Avenue is of a good standard and there are no works planned along this stretch. North of Griffeen Avenue the intention is to widen one of the existing pathways for the majority of the route (Figure 2 2). The existing path is approximately 2m in width and this will be widened to 4m. Widening the footpath will entail excavating to a depth of 250mm and backfilling with compacted stone. The finish material will be tarmac. The greenway crosses the Griffeen River in 4 locations, where existing brides will be replaced by 4m wide bridges. Where works are taking place public lighting will be provided. This will require a trench excavation to a depth of 600mm for ducting. There will also be public lighting columns approximately every 30m along the route.
Land-take	There will be no direct land take from any of Natura 2000 sites.
Distance from Natura 2000 site or key features of the site	The Natura 2000 sites and their proximity to the proposed site: • Rye Water Valley/Carton SAC (001398) - 2.6km • South Dublin Bay and River Tolka Estuary SPA (004024) - 13.9km • South Dublin Bay SAC (000210) - 15.0km • North Bull Island SPA (004006) - 17.0km • North Dublin Bay SAC (000206) - 17.0km
Resource requirements (water abstraction etc.)	There will be no water abstraction requirements.
Emissions (disposal to land, water or air)	Construction Phase: Water Potential pollutants will be utilised at the site, including diesel and engine/hydraulic oils and topsoil will be removed. These pollutants could potentially spill or leak into the surface water and groundwater and silt could runoff into surface water. Pollutants would be diluted and silt settle in the watercourse for a distance of 21km before reaching Dublin Bay Natura 2000 sites. Therefore, significant impacts are not anticipated via surface water. No significant impacts are anticipated via groundwater pathways given the shallow excavations required and any infiltration to the groundwater would discharge to the closest watercourses (Griffeen River and River Liffey). Air Excavations at the site will produce loose top and sub soil, and

Project Elements	Comment
	emissions may arise from working machinery. However, this is not anticipated to have a significant impact on habitats or species of any Natura 2000 site due to the distance, general wind direction and the presence of barriers in the urban setting. In the absence of any mitigation, the emissions from the project would not result in a negative impact on the Natura 2000 sites. Operation phase: The proposed development will use existing surface water drainage. The increase in hard standing surface in the park will result in an increase in surface water runoff with majority of the surface water being drained through the soil. Any impact on water quality will be negligible. Therefore, there will be no permanent impacts on any Natura 2000 site.
Excavation requirements	Construction phase excavation depths will be 250mm for widening of footpath and 600mm trench for ducting.
Transportation requirements	Temporary Impacts: Levels of traffic to the site during the construction phase will increase traffic to the area but will be temporary in nature. All access to the site will be on pre-existing roads and transportation requirements will not affect Natura sites. Permanent Impacts: Given the size, scale and location of the proposed project, transportation requirements will not affect Natura 2000 sites.
Duration of construction, operation, decommissioning etc.	Construction is expected to start in Q3 of 2022 and will last 6 months. Operation will be permanent, and no decommissioning is anticipated.
Other	None

6.2.8 Description of likely changes to the Natura 2000 sites

Potential Impact	Comments
Reduction of habitat area	There will be no reduction in habitat area for any of the Natura 2000 sites.
Disturbance to key species	Temporary Impacts: The construction works will temporarily increase the noise level and disturbance locally. However, no significant impacts are anticipated to key species given scale and temporary nature of the construction phase and distance from the Natura 2000 sites. Permanent Impacts: No disturbance to key species is anticipated during operation of the project.
Habitat or species fragmentation	There will be no temporary or permanent habitat or species fragmentation within any of the Natura 2000 sites.
Reduction in species density	There will be no temporary or permanent reduction in species density within any of the Natura 2000 sites, or any QIs of these sites.
Changes in key	There will be no temporary or permanent changes in key indicators

indicators of conservation value (water quality etc.)	of conservation value (surface water, groundwater and air quality).
Climate change	N/A

6.2.9 Description of likely impacts on the Natura 2000 sites as a whole

Potential Impact	Comments
Interference with the key relationships that define the structure of the site	There will be no interference with the key relationships that define the structure of the sites.
Interference with key relationships that define the function of the site	There will be no interference with the key relationships that define the function of the sites.

Provide indicators of significance as a result of the identification of effects set out above in terms of:

Potential Impact	Indicators
Loss (Estimated percentage of lost area of habitat)	No Natura 2000 sites will experience a direct loss in habitat area.
Fragmentation	Fragmentation of habitat and/or species is not anticipated.
Disruption & disturbance	Disruption and/ or disturbance is not anticipated.
Change to key elements of the site (e.g. water quality etc.)	Potential temporary changes to key elements (i.e. water quality) of the site are not anticipated.

6.2.10 Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is unknown

Based upon best scientific judgement, no significant effects are expected from the elements mentioned above; and there are no elements where the scale or magnitude of impacts is unknown.

6.3 Concluding Statement

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

On the basis of the screening exercise carried out above, it can be concluded that the possibility of any significant impacts on any European Sites, whether arising from the project itself or in combination with other plans and projects, can be excluded beyond a reasonable scientific doubt on the basis of the best scientific knowledge available, and a Natura Impact Statement (Stage 2 Appropriate Assessment) has been screened out.

Appendices

A National Biodiversity Data Centre (2022)

A.1 Recent records (within 10 years) of protected species within the 2km squares (O03G, O03H, O03L, O03M) of the site (National Biodiversity Data Centre, 2021)

Species name	Date of last record	Title of dataset	Designation
Barn Owl (*Tyto alba*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Barn Swallow (*Hirundo rustica*)	16/09/2017	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Black-headed Gull (*Larus ridibundus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Common Coot (*Fulica atra*)	13/01/2018	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Kestrel (*Falco tinnunculus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Kingfisher (*Alcedo atthis*)	31/03/2014	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Linnet (*Carduelis cannabina*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Pheasant (*Phasianus colchicus*)	27/06/2014	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Common Pochard (*Aythya ferina*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Redshank	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red

(*Tringa totanus*)			List
Common Starling (*Sturnus vulgaris*)	16/09/2017	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Swift (*Apus apus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Wood Pigeon (*Columba palumbus*)	28/03/2013	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Great Cormorant (*Phalacrocorax carbo*)	16/10/2012	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Herring Gull (*Larus argentatus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
House Martin (*Delichon urbicum*)	08/06/2018	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow (*Passer domesticus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Little Egret (*Egretta garzetta*)	12/10/2017	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
Little Grebe (*Tachybaptus ruficollis*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mallard (*Anas platyrhynchos*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Mew Gull (*Larus canus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mute Swan (*Cygnus olor*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Northern Lapwing (*Vanellus vanellus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Peregrine Falcon (*Falco*	16/09/2017	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I

peregrinus)			Bird Species
Tufted Duck (*Aythya fuligula*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Green Figwort (*Scrophularia umbrosa*)	10/07/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Endangered
Hairy St John's-wort (*Hypericum hirsutum*)	11/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Endangered
Lamiastrum galeobdolon subsp. *montanum*	08/04/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Vulnerable
Large Red Tailed Bumble Bee (Bombus (*Melanobombus) lapidarius*)	27/04/2013	Bees of Ireland	Threatened Species: Near threatened
Moss Carder-bee (Bombus (*Thoracombus) muscorum*)	10/06/2012	Bees of Ireland	Threatened Species: Near threatened
Brown Long-eared Bat (*Plecotus auritus*)	28/04/2011	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Daubenton's Bat (*Myotis daubentonii*)	26/08/2014	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Eurasian Badger (*Meles meles*)	17/02/2013	Road Kill Survey	Protected Species: Wildlife Acts
Eurasian Pygmy Shrew (*Sorex minutus*)	14/08/2012	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Leisler's Bat (*Nyctalus leisleri*)	28/04/2011	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Pine Martin (*Martes martes*)	23/06/2020	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Pipistrelle (*Pipistrellus*	28/04/2011	National Bat Database of	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife

pipistrellus sensu lato)		Ireland	Acts
West European Hedgehog (*Erinaceus europaeus*)	28/12/2020	Hedgehogs of Ireland	Protected Species: Wildlife Acts

A.2 Recent records (within 10 years) of invasive non-native species within the 2km squares (O12D, O12E, O02Y, O02Z) of the site (National Biodiversity Data Centre, 2021)

Species name	Date of last record	Title of dataset	Designation
Black Currant (*Ribes nigrum*)	16/09/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Cherry Laurel (*Prunus laurocerasus*)	14/01/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
Giant Hogweed (*Heracleum mantegazzianum*)	11/06/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Himalayan Balsam (*Impatiens glandulifera*)	20/07/2019	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Sycamore (*Acer pseudoplatanus*)	12/05/2018	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Jenkins' Spire Snail (*Potamopyrgus antipodarum*)	26/03/2003	All Ireland Non-Marine Molluscan Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
American Mink (*Mustela vison*)	02/08/2018	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Brown Rat (*Rattus norvegicus*)	14/08/2012	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Eastern Grey Squirrel (*Sciurus carolinensis*)	05/09/2018	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
European Rabbit (*Oryctolagus cuniculus*)	06/02/2014	Atlas of Mammals in Ireland 2010-2015	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species

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