9 Biodiversity

9.1 Introduction

This chapter provides information on ecological features of particular significance within or adjacent to the site of the Proposed Project, primarily designated habitats and species, including habitats/species listed in Annex I, II and IV of the EU Habitats Directive, rare flora listed in the Flora Protection Order, along with other semi-natural habitats of conservational value.

The following important ecological receptors were considered in the design of the overall development, and in assessing its likely ecological effects:

- Sites with nature conservation designations, including proposed Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Natural Heritage Areas (pNHAs), the reasons for their designation, and their conservation objectives, where available;
- Annex IV (Habitats Directive) species of fauna and flora, and their breeding sites and resting places, which are strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011;
- Other species of fauna and flora which are protected under the Wildlife Acts, 1976-2012;
- 'Protected species and natural habitats', as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, including:
    - Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur).
    - Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur).
- Other habitats of ecological value in a national to local context, including water courses in the general area;
- Stepping stones and ecological corridors including nature conservation sites (other than Natura 2000 sites) encapsulated by Article 10 of the Habitats Directive. Such features are those which, by virtue of their linear and continuous structure such as rivers with their banks or the traditional systems for marking field boundaries or their function as stepping stones (such as ponds or small woods) are essential for the migration, dispersal and genetic exchange of wild species.

9.2 Assessment Methodology

9.2.1 Guidance and Legislation

9.2.1.1 EU Habitats Directive

The "Habitats Directive" (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union and

lists certain habitats and species that must be protected within wildlife conservation areas, considered to be important at a European as well as at a national level. A "Special Conservation Area" or SAC is a designation under the Habitats Directive. The Habitats Directive sets out the protocol for the protection and management of SACs.

The Directive sets out key elements of the system of protection including the requirement for "Appropriate Assessment" of plans and projects. The requirements for an Appropriate Assessment are set out in the EU Habitats Directive. Articles 6(3) and 6(4) of the Directive.

9.2.1.2 EU Birds Directive

The "Birds Directive" (Council Directive 79/409/EEC as codified by 2009/147/EC) provides for a network of sites in all member states to protect birds at their breeding, feeding, roosting and wintering areas. This Directive identifies species that are rare, in danger of extinction or vulnerable to changes in habitat and which need protection (Annex I species). Appendix I of the Directive indicates Annex I bird species. A "Special Protection Area" or SPA, is a designation under The Birds Directive.

9.2.1.3 Appropriate Assessment

Special Areas of Conservation and Special Protection Areas form a pan-European network of protected sites known as Natura 2000 sites.

Article 6(3) of the Habitats Directive requires that any plan or project that is not directly connected with or necessary to the management of the Natura 2000 site concerned but is likely to have a significant effect on it, on its own or in combination with other plans and projects, is to be authorised only if it will not adversely affect the integrity of that site. Screening for AA and, if screening indicates the need, AA itself, must be carried out and the assessment and conclusions recorded to ensure that existing and future plans or projects are authorised only if they will not adversely affect the integrity of a site. These safeguards are designed to ensure the conservation of Natura 2000 sites.

The core principal objectives of the Planning and Development (Amendment) Act 2010 envisage a closer alignment of the National Spatial Strategy with Regional Planning Guidelines, Development Plans and Local Area Plans, while also clarifying the key obligations required of Planning Authorities under the Birds and Habitats Directives.

A report for the purposes of AA Screening is presented in **Appendix 9.1.**

9.2.1.4 Wildlife Acts 1976 – 2012

The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976. The aims of the Wildlife Act, according to the National Parks and Wildlife Service are "... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims.". All bird species are protected under the Act. The Wildlife

(Amendment) Act of 2000 amended the original Act to improve the effectiveness of the Act in order to achieve its aims.

9.2.2 Study Area

The study area comprises the immediate area of College Green and adjacent streets as identified in Chapter 4 '*Proposed Project Description*'.

9.2.3 Site Visits

A site visit was undertaken on the 28th December 2016 by the project ecologist. A separate survey was undertaken by a qualified Arborist to examine the status of trees in the study area. The arborists report is presented as a separate appendix to the EIS.

9.2.4 Consultation

The Development Applications Unit (DAU) of the Department of Arts, Heritage & Gaeltacht (DAHG) was sent a scoping email with a description of the Proposed Project. The Proposed Project was assigned a case number G Pre00379/2016 and a response to consultation received on the 19/12/16 to say that in the event of observations, a co-ordinated heritage-related response will be issued from Development Applications Unit (DAU) on behalf of the Department.

It should be noted that during the iterative process of the preparation of the EIS, due cognisance of the hydrogeological links between the study area and the River Liffey have been taken into account and are discussed in this chapter and the accompanying Report for AA Screening (**Appendix 9.1**). There has been liaison with other disciplines where interactions occur including hydrogeologists and landscape designers. Interactions with other environmental topics are discussed in Chapter 17 '*Cumulative Impacts and Interaction of Effects'*.

9.2.5 Categorisation of the Baseline Environment

This assessment identifies areas of designated nature conservation, including Special Areas of Conservation, (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) within 15 km of the Proposed Project site and identifies areas where rare or protected species of flora and fauna may occur within the study area. In addition, undesignated natural or semi-natural areas of biodiversity value are identified.

9.2.6 Impact Assessment Methodology

The assessment was carried out in three stages, firstly through desktop assessment to determine existing records in relation to habitats and species present in the study area. This included research on the National Parks and Wildlife Service (NPWS) website (www.npws.ie) the National Biodiversity Data Centre (NBDC) database (www.biodiversityireland.ie), BirdWatch Ireland (www.birdwatchireland.ie) and a literature review of published information on flora and fauna occurring in and adjacent to the Proposed Project area.

The following resources assisted in the production of this section of the assessment:

- Ordnance Survey Ireland maps;
- OSI, Google & Bing Aerial photography;
- National Biodiversity Data Centre data: http://www.biodiversityireland.ie/;
- National Parks and Wildlife Service (NPWS) Mapviewer: http://www.npws.ie/en/MapsData/
    - Designated sites (SACs, SPAs, NHAs);
    - Records of protected species from 10km squares; and
    - Species related publications.

Other environmental information for the area was reviewed, e.g. in relation to soils, geology, hydrology and hydrogeology. Interactions in terms of the chapters on these topics presented in this EIS were important in the determination of source vector pathways and links with potentially hydrogeologically connected areas outside the Proposed Project site.

The second phase of the assessment involved site visits to establish the existing environment in the footprint of the Proposed Project. Areas which are highlighted during the desktop assessment were investigated in closer detail according to the Heritage Council Publication *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al*., 2011) which is the agreed national methodology.

Flora and habitats at the site of the Proposed Project were classified according to the Heritage Council publication '*A Guide to Habitats in Ireland'* (Fossitt, 2000). This publication sets out a standard scheme for identifying, describing and classifying wildlife habitats in Ireland according to a hierarchical framework, with Level One habitats representing broad habitat groups, Level Two representing habitat sub-groups and Level Three representing individual habitat types. The Habitat Survey focused on identifying habitats to Level Three of the *Guide to Habitats in Ireland*. The annotation of vegetation occurring within sites was undertaken using the DAFOR scale. This scale refers to plant species in terms of dominance, abundance, frequency, occasional and rare (DAFOR). Species recorded in this report are given in both their Latin and English names. Latin names for plant species follow the nomenclature of Webb's "An Irish Flora" (Parnell & Curtis, 2012).

Fauna were surveyed in the context of direct and indirect disturbance effects, especially for mammals and birds.

Any mammalian fauna, their tracks etc. observed during the visit were identified, and the potential value of the site to mammals was assessed in terms of potential disturbance, loss of feeding, resting/roosting or breeding habitat.

Birds present on site were recorded while undertaking habitat surveys. Species descriptions are based on BirdWatch Ireland data (www.birdwatchireland.ie/IrelandsBirds) and the Collins Bird Guide App.

Amphibians, reptiles and invertebrates if present were recorded as casual observations.

The final part of the assessment involves an evaluation of the Proposed Project area and determination of the potential impacts of the Proposed Project on the flora and fauna of the area. Habitat evaluation and impact assessment is based on the Chartered Institute of Ecology and Environmental Management's *Guidelines*

for Ecological Impact Assessment (CIEEM, 2016). Judgments on the evaluation are made using geographic frames of reference, e.g. European, National, Regional or Local.

This part of the assessment forms the basis for impact assessment and is based on the following guidelines and publications:

- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, December 2009, Rev 2010);
- EPA Revised Guidelines on the Information to be contained in Environmental Impact Statements Draft September (EPA, 2015a);
- EPA Revised Advice Notes on for Preparing Environmental Impact Statements Draft September (EPA, 2015b);
- EPA Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2002);
- EPA Advice Notes on for Preparing Environmental Impact Statements Draft September (EPA, 2003);
- Fossitt, J. (2000) A Guide to Habitats in Ireland. The Heritage Council;
- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2016).

The EPA set out a system of impact assessment and rating of significance in Section 3.7.7 of the draft EIS Guidelines (EPA, 2015a). Refer to Section 1.4.3.3 for a description of impact significance ratings.

9.3 Baseline Environment

9.3.1 Designated Conservation Areas

There are no designated conservation areas on the site of the Proposed Project.

Departmental guidance suggests an assessment of Natura 2000 sites within a zone of influence of 15 km which can be revised down depending on the Proposed Project and location of Natura 2000 sites. There are 16 Natura 2000 sites located within a 15km radius of the Proposed Project study as detailed in the Report for AA Screening.

Of the 16 Natura 2000 sites identified, a number of these are not considered to have any direct ecological or hydrological connectivity to the Proposed Project site, by which a significant impact could arise. These 12 sites include:

- 000199 Baldoyle Bay SAC
- 000202 Howth Head SAC
- 000205 Malahide Estuary SAC
- 001209 Glenasmole Valley SAC
- 002193 Ireland's Eye SAC
- 003000 Rockabill to Dalkey Island SAC
- 004016 Baldoyle Bay SPA
- 004025 Malahide Estuary SPA
- 004040 Wicklow Mountains SPA

- 004113 Howth Head Coast SPA
- 004117 Ireland's Eye SPA
- 004172 Dalkey Island SPA

It is determined that there is no potential for significant effect on these sites and they are screened out at this preliminary stage for the following reasons:

- Distance from the Proposed Project site;
- There is no direct connection between the site of the Proposed Project and these three sites; and
- The potential for indirect impacts is unlikely due to distance and lack of connectivity.

The Proposed Project location at College Green is then considered in terms of source-pathway-receptor relationship and proximity to the River Liffey with regards direct ecological and hydrological connectivity to Dublin Bay. There are four Natura 2000 sites located within a potential zone of influence of the Proposed Project:

- 000206 North Dublin Bay SAC
- 000210 South Dublin Bay SAC
- 004006 North Bull Island SPA
- 004024 South Dublin Bay and River Tolka Estuary SPA

The location of the Proposed Project site is presented in **Figure 9.1** below in relation to the Natura 2000 sites considered within the potential zone of influence.

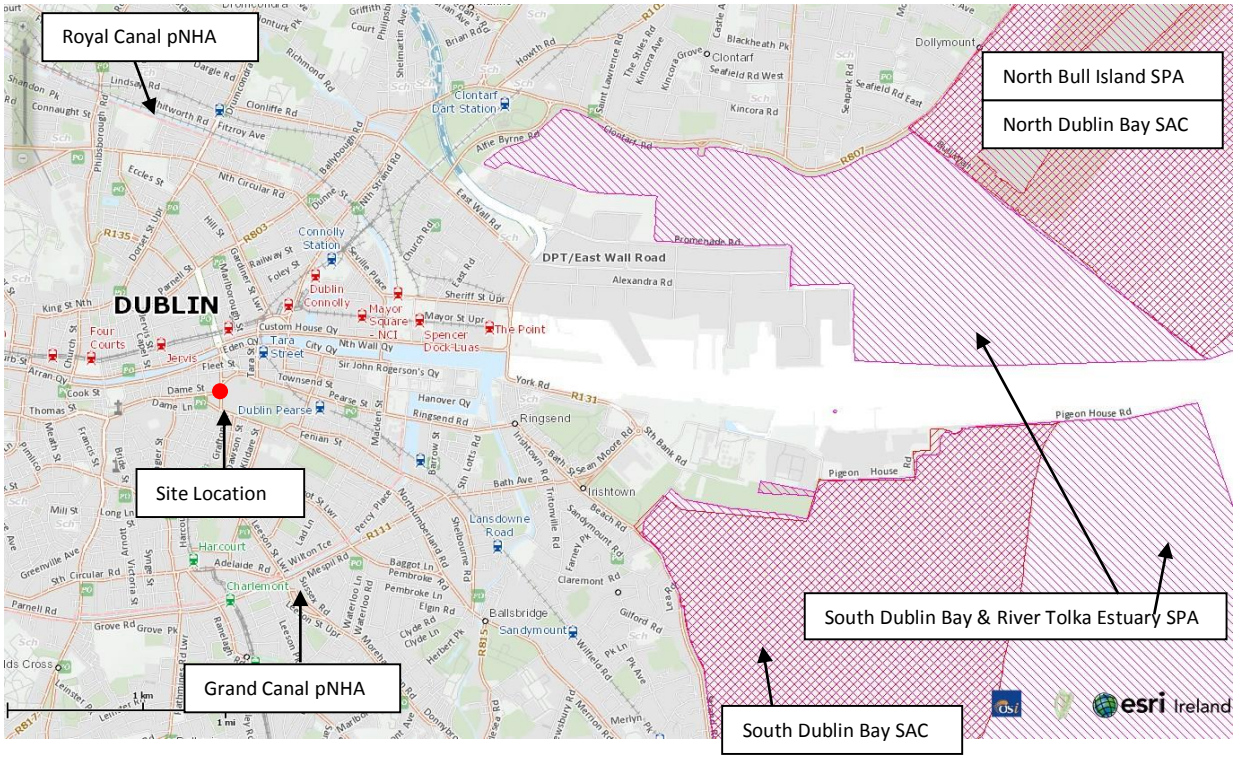

Figure 9.1 - Site Location at College Green in relation to downstream Natura 2000 sites

9.3.2 Undesignated Habitats

College green is an urban environment comprised of Buildings and artificial surfaces (BL3). There are scattered London Plane trees surrounding the Henry Grattan statue and in Foster Place. The bases of trees were colonised in places by Common chickweed (*Stellaria media*) and Annual Wall rocket (*Diplotaxis muralis*). Both species have been long recorded in Dublin City (P. Wyse Jackson & M. Sheehy Skeffington, 1984), the latter is an introduced species ('a characteristic Co. Dublin species' (D. Doogue *et al.* eds. 1998), both found on disturbed ground.

The River Liffey represents a highly significant regional salmonid catchment and also supports a diversity of coarse fish. The River Liffey also supports protected lamprey species and white-clawed crayfish. There are no known direct links with the River Liffey which is located at a distance of c. 235 m from the works area and there will be no discharge to the watercourse and no in-stream structures. There is low potential for contamination of the River Liffey as a result of adjacent construction activities associated with the Proposed Project. An accidental contamination event could adversely affect protected aquatic species and fish stocks. Consequently, there is potential for a moderate negative impact on protected aquatic species and fish if best practice construction measures are not fully implemented.

9.4 Predicted Impacts

9.4.1 Direct Impacts

9.4.1.1 Construction Phase

The Proposed Project is predominantly comprised of groundworks in the inner city urban environment (refer to Chapter 4, '*Proposed Project Description'* for a detailed description).

It is proposed to remove eight trees from the area of the traffic island at the Henry Grattan statue and Thomas Davis memorial. At the junction of Grafton Street, two trees are also to be removed as a result of the Luas Cross City scheme.

The predicted impact is not significant on local habitats of lower value and will be neutral after landscaping.

By way of compensation it is proposed to add 22 new London Plane trees; ten in a single line along the south side of the plaza, and a further twelve forming an avenue at the approach to the space from Dame Street. It is proposed to retain the distinguished Plane trees in Foster Place. In order to inhibit motor traffic entering the pedestrian priority area of College Green from the west, it is proposed to add metal planters of Corten steel, 5m x 1m, punctuated with retractable bollards between.

There will be minor changes to the location of trees during the construction phase which will not be significant in terms of impacts on biodiversity. The quality of the impact on local habitats will be neutral.

No planned construction activities have the potential to impact on surface water quality. The unplanned activities which may impact upon the surface water quality on site during the construction phase are:

- Accidental spillages of polluting materials on site;
- Release of fines into the surface water; and
- The potential for contaminated runoff to enter the surface water.

Accidental spillages and contaminated runoff and will be avoided by construction management measures which are set out in the Construction and Environmental Management Plan (CEMP), refer to **Appendix 4.1**.

9.4.1.2 Operational Phase

Surface water from artificial surfaces will drain to the municipal stormwater system and will not affect the River Liffey or downstream areas of conservation.

The predicted impact will be neutral.

9.4.2 Indirect Impacts

9.4.2.1 Construction Phase

As previously mentioned, the potential for accidental contaminated runoff to enter the surface water system during construction will be avoided by construction management.

The predicted impact will be neutral.

9.4.2.2 Operational Phase

There will be no significant impact on surface water or on the hydrology of the surrounding area as a result of the Proposed Project and as such there will be no significant impact on the European sites located in Dublin Bay or on any other site of natural conservation during the operational phase of the Proposed Project – refer also the Report for the Purposes of Appropriate Assessment Screening report in **Appendix 9.1**.

9.5 Mitigation Measures

9.5.1 Tree Replacement

By way of compensation for tree loss at the Henry Grattan Statue and Thomas Davis memorial, it is proposed to plant 22 new London Plane trees; ten in a single line along the southern side of the plaza, and a further twelve forming an avenue at the approach to the space from Dame Street. It is proposed to retain the distinguished Plane trees in Foster Place. In order to inhibit motor traffic entering the pedestrian priority area of College Green from the west, it is proposed to include metal planters of Corten steel.

9.5.2 Management Measures for Surface Water

The surface water drainage network is designed in full cognisance of the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). Sustainable Urban Drainage Systems (SUDS) are to be incorporated into the design of all storm control areas, using best practice standards as detailed in the Chapter 12 '*Soils, Geology, Hydrogeology and Hydrology'*).

Chapter 12 '*Soils, Geology, Hydrogeology and Hydrology'* of this EIS highlights the construction management measures to be implemented to reduce potential impacts on surface water quality. During construction, the Contractor will employ management measures outlined in the Construction and Environmental Management Plan (CEMP) attached to this EIS to contain any areas at risk of contaminated runoff. Construction management measures specifically related to the protection of surface water quality are listed below:

- Any stockpiles of construction material shall be stored on impermeable surfaces and covered using tarpaulin;
- Good housekeeping (daily site clean-ups, use of disposal bins, etc.) on the site during construction, and the proper use, storage and disposal of these substances and their containers will prevent groundwater contamination;
- For all activities involving the use of potential pollutants or hazardous materials, there will be a requirement to ensure that material such as concrete, fuels, lubricants and hydraulic fluids will be carefully handled and stored to avoid spillages. Potential pollutants shall also be adequately secured against vandalism and will be provided with proper containment according to codes of practice. Any spillages will be immediately contained and contaminated soil removed from the site and properly disposed of;
- The risk of water pollution will be minimised by the implementation of good construction practices. Such practices will include adequate bunding for silos, oil containers, wheel washers and dust suppression on site roads, and regular plant maintenance. The Construction Industry Research and Information Association (CIRIA) provides guidance on the control and management of water pollution from construction sites in their publication Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (Masters – Williams et al, 2001). A contingency plan for pollution emergencies will also be developed by the appointed Contractor prior to the commencement of the works and regularly updated, which will identify the actions to be taken in the event of a pollution incident;
- In accordance with recommendations in the CIRIA document, a contingency plan for pollution emergencies will be prepared which will address the following:
    - Containment measures;
    - Emergency discharge routes;
    - List of appropriate equipment and clean-up materials;
    - Maintenance schedule for equipment;
    - Details of trained staff, location and provision for 24-hour cover;
    - Details of staff responsibilities;
    - Notification procedures to inform the Environmental Protection Agency (EPA) or Environmental Department of the Dublin City Council;
    - Audit and review schedule;
    - Telephone numbers of statutory water consultees; and

- List of specialist pollution clean-up companies and their telephone numbers.

9.6 Residual Impacts

There will be no significant impact on biodiversity discussed in this chapter from the proposed works following the proposed best practice construction management measures and tree replacement.

Construction management measures to prevent impacts on surface water quality which have been described in the EIS (see **Section 12.5**) will be included in a Construction and Environmental Management Plan (refer to **Appendix 4.1**) to ensure these measures are fully implemented by the Contractor. There will be no significant residual impacts on surface water quality once these measures have been employed.

9.7 Difficulties Encountered

There were no difficulties encountered during the preparation of the impact assessment of biodiversity.

9.8 References

Department of the Environment, Heritage and Local Government (2010) *Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010).*

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