



Lucan Public Realm

Liffey Promenade & Demesne Park
Entrance

Ecological Impact Assessment

Doherty Environmental Consultants Ltd

January 2022

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Liffey Promenade & Demesne Park Entrance

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1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by South Dublin County Council to undertake an ecological impact assessment for proposed public realm enhancement works to the Liffey Promenade and the Demesne Park Entrance at Lucan, Co. Dublin. The location of the Liffey Promenade and the Demesne Park Entrance are shown on Figure 1.1 below while an aerial image of both locations are shown on Figure 1.2 and 1.3.

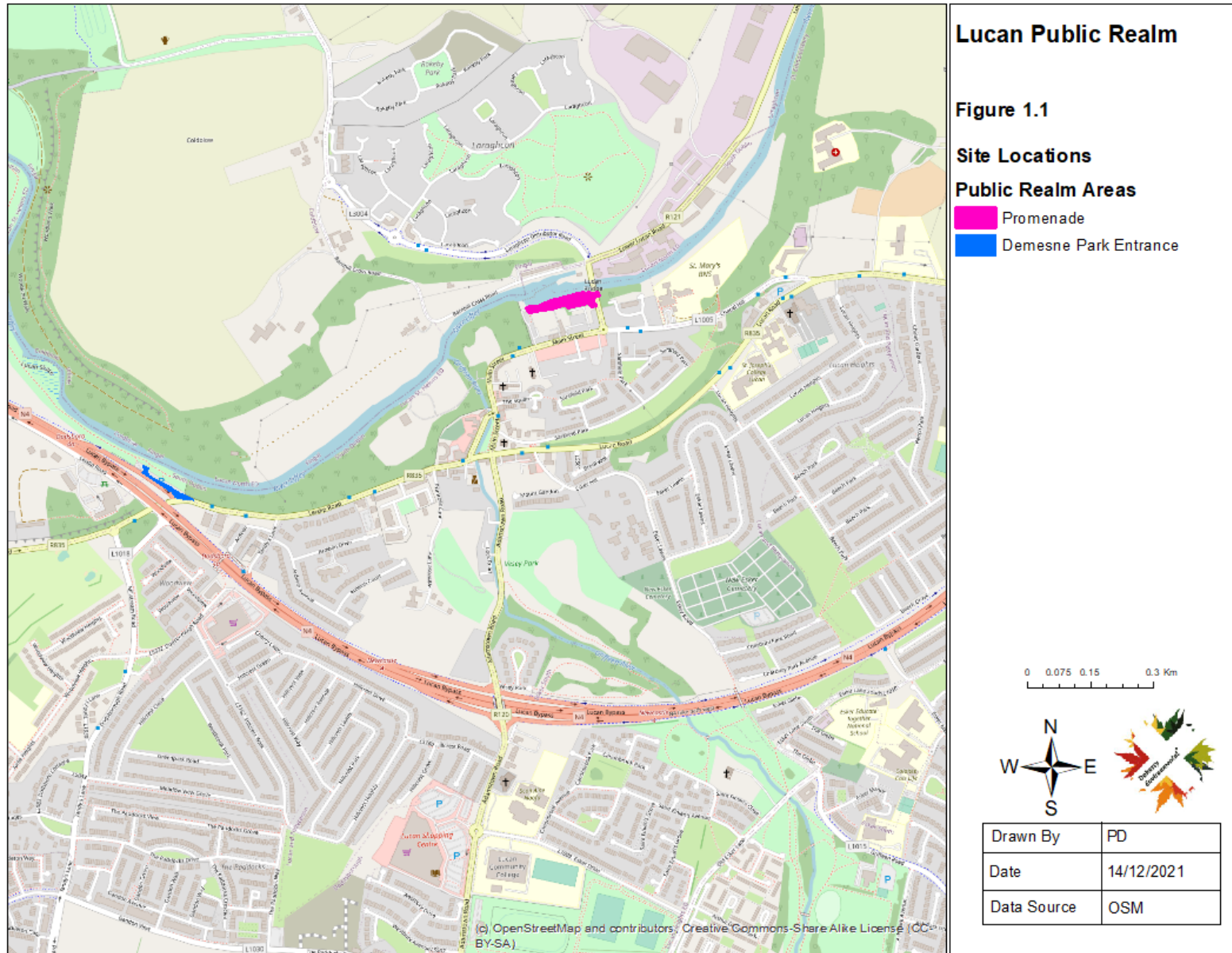
1.1 LEGISLATION

Flora and fauna in Ireland are protected at a national level by the Wildlife Act, 1976 and the Wildlife (Amendment) Act, 2000 and the Flora (Protection) Order, 1999 (SI 94/1999). They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC).

The transposition of the EU Habitats Directive by the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021 (referred to as the Habitat Regulations) provides the legal basis for the protection of habitats and species of European importance in Ireland.

The legislative protection of habitats and species provided by the Habitats Directive has been implemented in Ireland and throughout Europe through the establishment of a network of designated conservation areas known as the Natura 2000 (N2K) network (with individual sites being referred to as Natura 2000 Sites). The N2K network includes sites designated as Special Areas of Conservation (SACs), under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the EU Birds Directive. SACs are designated in areas that support habitats listed on Annex I and/or species listed on Annex II of the Habitats Directive. SPAs are designated in areas that support: 1% or more of the all-Ireland population of bird species listed on Annex I of the EU Birds Directive; 1% or more of the population of a migratory species; and more than 20,000 waterfowl. Under the National Habitat Regulations all designated Natura 2000 Sites are referred to as European Sites.

The Wildlife Act 1976 (as amended) also provides for the statutory designation of nature conservation areas. These areas are referred to under the Wildlife Acts as Natural Heritage Areas and are designated in areas that support habitats and/or species of national importance.





Lucan Public Realm

Figure 1.2

Aerial View of the Liffey Promenade

Public Realm Areas

 Liffey Promenade

0 0.01 0.02 0.04 Km



Drawn By	PD
Date	14/12/2021
Data Source	Bing


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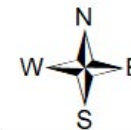
Lucan Public Realm

Figure 1.3

Aerial View of the Demesne Park Entrance Public Realm Areas

 Demesne Park Entrance

0 0.0075 0.015 0.03 Km



Drawn By	PD
Date	14/12/2021
Data Source	Bing

Other relevant national legislation concerning the protection of flora, fauna and fisheries include the:

- Planning Act 2010;
- European Communities (Quality of Salmonid Waters) Regulations, 1988;
- The Freshwater Fish Directive 1978 (78/659/EEC); and
- The Surface Water Regulations, 2009.

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

2.2 LIFFEY PROMENADE

2.2.1 *Extent of the works:*

The site area extends from Lucan Bridge to the east to the steps and landing at the end of Watery Lane on the western end, and from the Liffey edge to the site boundary on the southern side, including the access route to the river edge from the rear of the Mall properties. It includes a related but separate area at the junction of Watery Lane and the Mall/Main Street.

No changes are proposed to the existing promenade pathway and river edge steps.

Most of the changes being proposed relate to additional landscaping and planting apart from the addition of a new external stairway from the Bridge to the river level. The works for this stairway and for the Watery Lane junction have already been approved under a previous Part 8 and therefore do not form part of this assessment.

2.2.2 *Nature of Works*

1. The construction of a set of landscaped steps, retaining walls and railings from the current access point at bridge level to the end of the bridge wall at river level. The stairway is configured as a series of short flights with landings along its lower half

followed by a longer flight and dog-leg return for the upper half. Retaining walls and seating are clad in black limestone and the steps and landings are concrete with a resinbond finish (as per Part 8 drawing 01 by SDCC/2015).

2. New concrete paving to the footpath ends and carriageway at the entrance to Watery Lane, and a new tree on its western side (as per Part 8 drawing 01 by SDCC/2015).
3. Some modifications to the steps at the western end of the Promenade will be made to form a series of seats facing the weir. These seats will be finished in black marble, just like the seats along the steps at the Bridge end.
4. The relandscaping of the area between the existing promenade path and the southern boundary. All existing trees are being retained and approx. 25 no. new trees and shrubs are being planted along this edge. These are native deciduous varieties such as Elm, Birch and Alder, in keeping with existing and traditional species found in this Liffey Valley habitat.
5. A number of natural stone benches are proposed along the edge of the Promenade, sitting on a reinforced grass finish having a backdrop of wildflower meadow.
6. An adjustment of the arrival point of the access route beside the Promenade is proposed in order to allow the construction of the landscaped steps at their connection with the promenade path. Any connection between the bottom of these steps and the Promenade will be made using the same materials and finish as the Promenade path.
7. One of the existing lighting poles is being moved a few metres to the east where it clashes with this redirected access path. It is proposed to add a series of service point pop-ups along the southern edge of the Promenade path to enable to space to function as an open-air market, or for organized community events, performances etc.

2.2.3 Design Rationale

These proposals are an attempt to do as little as possible but just as much as is necessary to this popular amenity spot. The improved planting and landscaping will provide some inflection of the very artificial lines of the Promenade path while defining informal ‘break-out’ areas for small group gatherings or intimate conversation. These spaces still face out towards the Promenade and are quite visible from it as well as from the Bridge so that overlooking discourages anti-social behaviour.

The provision of service points for seasonal markets or performances etc. aims to provide more flexibility of uses. There is sufficient width on the Promenade (approx. 6m) to accommodate the space for stalls. Figure 2.1 illustrate the proposed works to be completed at the Liffey Promenade.

Figure 2.1: View of extent of public realm works at the Liffey Promenade



2.3 DEMESNE PARK ENTRANCE

2.3.1 Extent of the works

The site stretches from its connection with the footpath (from Lucan) at its eastern end to the demesne park access gates at the western end. It is bordered by the N4 slip road and its junction with the Lucan Road on its southern side and by the Demesne park boundary wall and woodland on its northern edge. It is worth adding that this boundary wall, in rubble stone, forms a continuous line from Lucan town centre to the demesne entrance although it is replaced with block and then block with stone facing from the point where it meets the Tobermaclugg stream (which is culverted under the site). A waste water pumping station is located along this boundary immediately to the west of this stream.

2.3.2 Description of the works

1. Releveling of the landing/entrance area outside the pedestrian access gates to the Park to provide a continuous, consistent level across the works area (the level rises steadily from east to west). This landing area is to be paved in concrete paviours or similar.
2. Construction and installation of a box-section painted steel portal to mark this pedestrian entrance from the eastern approaches.
3. Construction of a circular paved area (diam. 17.5m approx.) at the widest point of the site (opposite N4 Underpass). A length of existing wall in plastered block which the circle intersects on the northern side is to be removed and replaced with a circular

concrete wall and seat. A foundation is to be provided towards the centre of the circular area for a piece of public art (to be commissioned separately to this Part 8).

4. A length of existing wall in block with stone facing (approx. 12.5m) immediately to the east of the pedestrian entrance is to be removed.
5. Fabrication and installation of a painted steel railing the same height as the existing demesne wall, from the circular paved area as far as the pedestrian entrance.
6. The provision of masonry bench-seating to both paved areas.
7. The provision of landscaping to the N4 boundary consisting of shrubs and hedges, a pair of deciduous trees and an area of wildflower meadow.
8. The removal of existing tarmac surfacing and the resurfacing of the non-paved areas in a Ballylusk gravel or similar.
9. The installation of 3 no. retractable bollards at the eastern end of the site, the installation of a series of bicycle stands at this location too.

2.3.3 Design rationale

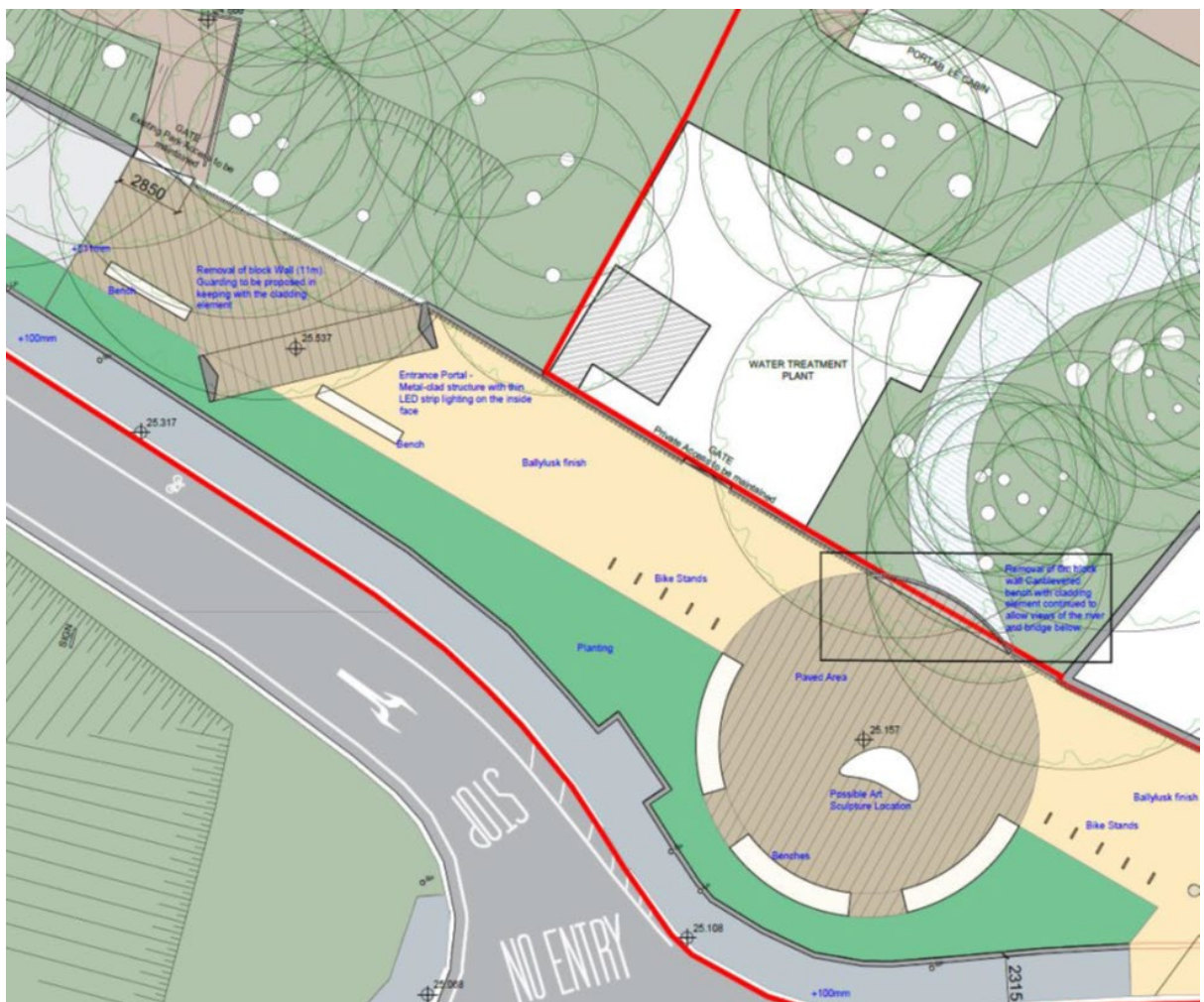
The design intention here is to create a sense of place in contrast to the relative anonymity of the current receiving environment, as well as a wayfinding point that marks both the Demesne Park entrance and the western ‘gateway’ to Lucan village. The ad-hoc car park currently occupying the site is being moved across the Lucan Road (as a separate Part 8 application) so that pedestrian, cycle and canoe/kayak users will have unrestricted access to the Park entrance. A set-down area for club vans and trailers is provided at the eastern end of the site. Maintenance and emergency vehicle access is provided by means of a line of removable bollards and by the clear dimensions of the steel portal (4.5 x 4.5m).

The demesne wall which is such an important link to Lucan village centre becomes a visual barrier to as one approaches the entrance. It also serves to hide occasional anti-social behaviour around the Tobarnaclugg bridge and water treatment plant within the Park area below. By removing portions of the wall here the intention is to make park users feel safe as they approach it by providing overlooking of the woodland from the entrance approaches. This is achieved by removing the wall where the circular plaza cuts into it and by replacing it from the entrance portal onwards by means of a metal lath fence which provides good visibility into the woodland. This metal fence is used to screen the existing surfaces of wall to the treatment plant area where

it is not proposed to open up the views. In this way the same element as a fence or as a screen will provide a sense of unity and continuity to this boundary.

This circular plaza will be framed by a pair of trees facing the N4 Underpass (R835) and is intended to accommodate a piece of public art. It will act as a staging point for groups of cyclists, walkers and river users. Car parking is available across the road and accessed via a controlled crossing. A dense band of vegetation consisting of Hydrangea, Cherry Laurel and Wild Plum screens the site area from the slip road. Figure 2.2 provides an illustration of the proposed works at the Demesne Park Entrance.

Figure 2.2: View of the extent of public realm works at the Demesne Park Entrance



3.0 METHODS

3.1 DESKTOP ASSESSMENT

A desktop assessment of the Liffey Promenade and the Demesne Park Entrance has been completed for the project. Historical maps and current satellite imagery for both sites was reviewed to identify previous and existing land cover in the area. baseline published information for designated conservation areas, geology and hydrology was also reviewed. The National Biodiversity Data Centre (NBDC) records for rare, threatened and protected species was consulted and all records for such species within or adjacent to both project locations were collated.

3.2 EXTENDED PHASE 1 HABITAT SURVEY

Site surveys were completed at the project sites on the 13th April, 30th May, 13th July, and 17th November 2021. The methodology used during this survey was based on the Heritage Councils *Best Practice Guidance for Habitat Survey and Mapping* (2010). The classification of habitats recorded during the field survey is based on the Heritage Council's *A Guide to Habitats in Ireland*.

The *Guide to Habitats in Ireland* classifies habitats according to a hierarchical framework with Level 1 habitats representing broad habitat groups, Level 2 representing habitat sub-groups and Level 3 representing individual habitat types. The Phase I Field Survey focused on identifying habitats to Level 3 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). Plant nomenclature in this report follows Webb (1996) for vascular plants and Smith (2004) for mosses.

A survey for field signs indicating the presence of otters or other protected non-volant mammal species such as Irish stoat and badgers was undertaken during the field surveys. This survey was undertaken during the daytime and particular attention was given to habitat features normally associated with otters. These included the bankside of the River Liffey and the Tobermaglug Stream to the north of the Demesne Park Entrance and along the promenade and

adjacent river verge at the Liffey Promenade. Any mammal field signs typical of otter activity were recorded during the surveys. These field signs, as described in Neal & Cheeseman ⁽¹⁾ and Bang & Dahlstrom ⁽²⁾, include:

- mammal breeding and resting places, such as setts, holts, couches, lairs;
- pathways;
- prints;
- spraints and faecal deposits;
- latrines (and dung pits used as territorial markers);
- prey remains and feeding signs (snuffle holes);
- hair; and
- scratch marks.

All bird species seen using the site (as opposed to simply flying over it) were recorded.

An appraisal of habitats occurring within the project site for their potential to support bat species was completed during the initial field survey in April 2021. A manual bat survey was completed on site on the 30th May and 13th July during the 2021 bat activity seasons. The surveys were completed to sample the bat species occurring at or in the vicinity of the Liffey Promenade and the Demesne Park Entrance. The surveys involved walking a continuous transect through both project sites to record species of bats, if any, occurring at each area. The bat surveys were

(1) Neal, E., & Cheeseman, C., (1996). 'Badgers'. Poyser Natural History, London.

(2) Bang, P., & Dahlstrom, P., 'Animal Tracks and Signs'. Oxford University Press, Oxford.

completed using an Echo-Meter Touch Pro bat detector. The bat surveys were completed during nights of optimal foraging conditions for bats.

3.3 ECOLOGICAL EVALUATION

Commentary on the ecological value of habitats is provided in Section 4 of this report.

The nature conservation value of habitats and ecological sites occurring within the proposed site are based upon an established geographic hierarchy of importance as outlined by the National Roads Authorities (NRA, 2009). The outline of this geographic hierarchy is provided below and this has been used to determine ecological value in line with the ecological valuation examples provided by the NRA (see NRA, 2009). The geographic evaluation hierarchy is as follows:

- International Sites (Rating A);
- National Importance (Rating B);
- County Importance (Rating C);
- Local Importance (higher value) (Rating D); and
- Local Importance (lower value) (Rating E)

The evaluation of birds within the project site is based on the methods outlined by Percival (2003).

3.4 IMPACT ASSESSMENT

3.4.1 Impact Magnitude

Impact magnitude refers to changes in the extent and integrity of an ecological receptor. The IEEM (2006) defines integrity of designated conservation areas as “the coherence of the ecological structure and function across the area that enables it to sustain the complex of habitat and/or the levels of populations of the species for which it was classified”. For non-designated sites this can be amended to: “the coherence of ecological structure and function, that enables it (the site or populations supported by the site) to be maintained in its present condition’. For

the purposes of this assessment the impact magnitude is influenced by the intensity, duration, frequency and reversibility of a potential impact and is categorised as follows:

High magnitude impact: that which results in harmful effects to the conservation status of a site, habitat or species and is likely to threaten the long-term integrity of the system.

Moderate magnitude impact: that which results in harmful effects to the conservation status of a site, habitat or species, but does not have an adverse impact on the integrity of the system.

Low magnitude impact: that which has a noticeable effect but is either sufficiently small or of short duration to cause no harm to the conservation status of the site, habitat or species.

Imperceptible: that which has no perceptible impact.

Positive: that which has a net positive impact for the conservation status of a site, habitat or species.

3.4.2 Impact Significance

The significance of impacts is determined by evaluating the nature conservation value of the site, habitat or species concerned together with the magnitude of the impacts affecting the system. The more ecologically valuable a receptor and the greater the magnitude of the impact, the higher the significance of that impact is likely to be. Table 3.1 outlines the levels of impact significance to be used during the assessment of impacts. The probability of an impact occurring will also be outlined when defining the significance of impacts.

Table 3.1: Impact Assessment Matrix

Nature Conservation Value	Magnitude of Potential Impact			
	High	Moderate	Low	Imperceptible
International	Severe	Major	Moderate	Minor
National	Severe	Major	Moderate	Minor
County	Major	Moderate	Minor	Minor
Local	Moderate	Minor	Minor	Negligible

Low	Minor	Negligible	Negligible	Negligible
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Impacts to bird species recorded breeding within the project site is based on the methods outlined in Percival (2003).

4.0 RESULTS

4.1 LIFFEY PROMENADE

4.1.1 Review of Historical Maps

A review of historical mapping (6 inch colour map 1829 to 1842; 6 inch Cassini, 1830's) and the 25 inch map, 1888 to 1913) for the Promenade area shows the presence of the existing weir and the "Weir Bridge" along with the salmon pass. The Liffey Canal is modified downstream of the weir and opens out into a wider channel that likely provided instream pool and slow glide habitat.

The rear gardens of the houses on Main Street are shown extending north towards the river bank and a comparison between the historical maps and the current landcover between Main Street and the river indicates little change in the intervening time. The only change, which is not depicted on the historical maps is the provision of the promenade.

In terms of placenames Lucan is derived from the Irish "Leamhcan" meaning "Place of the Elms". Francis Elrington Ball's "History of the County Dublin (1906) suggests the name Lucan is derived from the "Place of the Marshmallows". Marshmallow (*Althaea officinalis*), which is listed as near threatened vascular plant species in Ireland (Jackson, 2016) is a species of coastal areas in the south and west of Ireland. A review of the National Biodiversity Data Centre historical records (from 1746 to 2019) for this species shows its distribution being restricted to the south and west coast with no records from the east coast and Dublin. However marshmallow is referenced by Rutte (1772) in his botanical calendar of native and cultivated species occurring in Dublin.

Wych elm (*Ulmus glabra*; *Leamhan sleibhe*) is a native species, typical of mountainous areas and moist soils. There are records for its presence along the steep wooded slopes of the Liffey

Valley and given its presence and close name association it is most likely that Lucan is associated with elms rather than marshmallow.

4.1.2 Geology Overview

The bedrock underlying the site is a mix of limestone and shale. A bedrock fault line runs parallel to the left-hand bankside of the river to upstream of the promenade. It is orientated broadly southwest to northeast and crosses the River Liffey close to the line of the weir crossing. The subsoils are dominated by alluvium derived from the River Liffey while the existing land cover is dominated by artificial made ground. The promenade is situated in an area of high groundwater vulnerability.

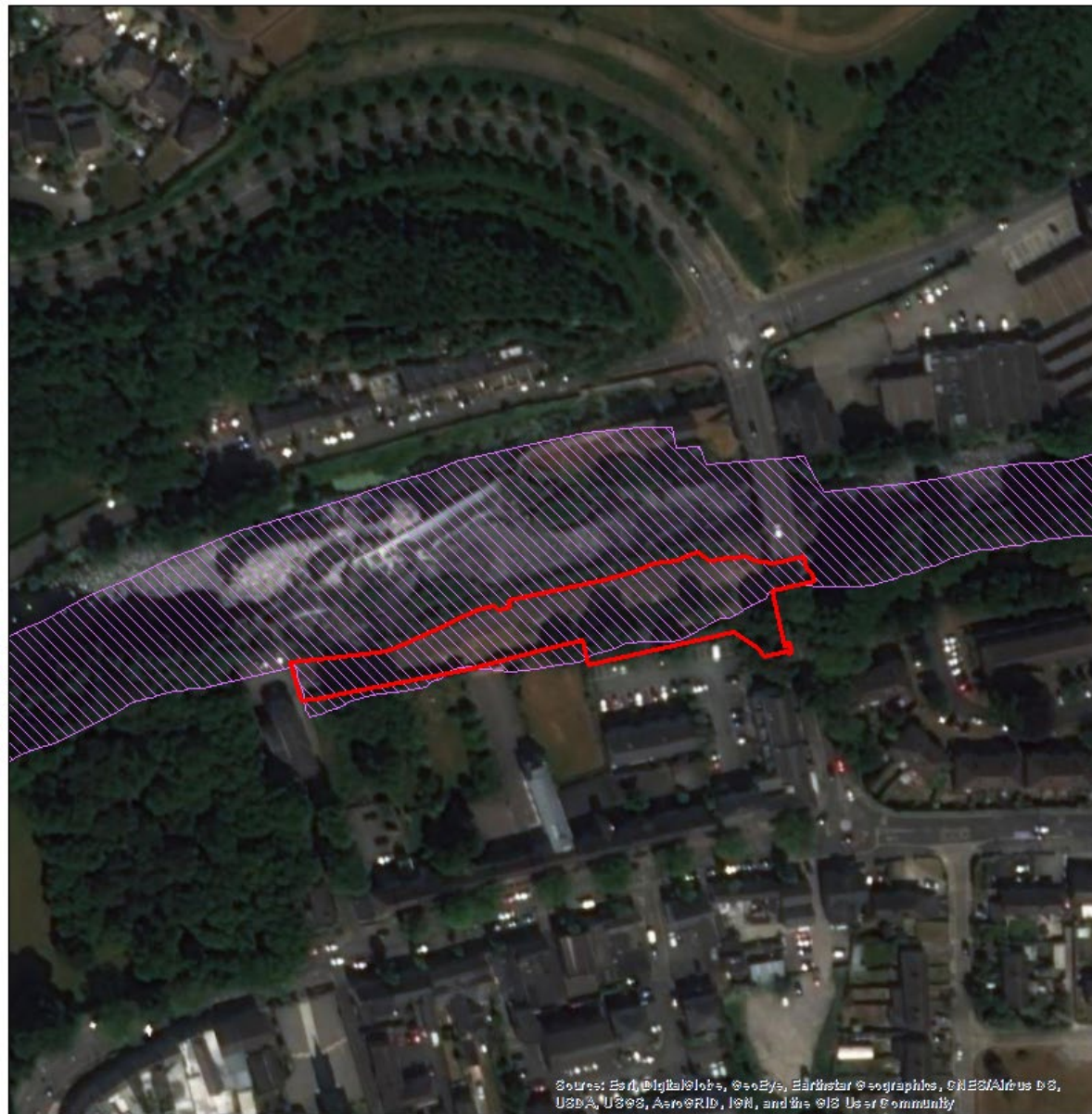
4.1.3 Hydrology

The promenade occupies a section of the right-hand bankside of the River Liffey as it flows through Lucan.

4.1.4 Designated Conservation Areas

There are no European Sites (SACs or SPAs) or Natural Heritage Areas (NHAs) occurring in the vicinity of the Promenade. However the Promenade is located within the Liffey Valley proposed NHA (pNHA) (see Figure 4.1 below). The Liffey Valley pNHA has been summarised as follows:



The Liffey Valley site is situated along the River Liffey between Leixlip Bridge on the Kildare-Dublin border and downstream of the weir at Glenaulin, Palmerstown, Co. Dublin. The river meanders through low hills for much of its course through the site and forms the focus for the site itself. The Mill Race between Palmerstown and the weir at the Wren's Nest Public House is also included in the site. The river is a Salmon river and there are a series of weirs along the river between Palmerstown and Leixlip. The water level in the Mill Race has dropped and the channel has been filled with vegetation in a number of areas as a result. The main terrestrial habitat included within the site is mixed deciduous woodland on fertile, limey alluvium and boulder clay, in which Beech (*Fagus sylvatica*) is dominant in some areas. Elsewhere Ash (*Fraxinus excelsior*) and willow species (*Salix* spp.) are common and there are also some stands of larch (*Larix* spp.) and Scots Pine (*Pinus sylvestris*). Toothwort (*Lathraea squamaria*) has been recorded on a number of tree species. The ground flora commonly includes Ivy (*Hedera*



Lucan Public Realm

Figure 4.1

Liffey Promenade & River Liffey pNHA

-  Liffey Promenade
-  Liffey Valley (Site Code: 000128)

0 0.0125 0.025 0.05 Km



Drawn By	PD
Date	18/12/2021
Data Source	Bing

helix), Primrose (*Primula vulgaris*), violet species (*Viola* spp.), Lords-and-ladies (*Arum maculatum*) and Hart'stongue (*Phyllitis scolopendrium*). These woodlands occur on both sides of the river.

4.2 LIFFEY VALLEY LUCAN DEMESNE

4.2.1 Review of Historical Maps

A review of historical mapping for the Demesne area shows the presence of woodland habitat along the right-hand bankside of the River Liffey between what is now the M4 and the river. This woodland habitat is depicted in Rocque's historical map from 1760 and is present to this day. The woodland formed part of the original Lucan Demesne.

4.2.2 Geology Overview

The bedrock underlying the site is a mix of limestone and shale. A bedrock fault line runs parallel to the left-hand bankside of the river to upstream of the promenade. It is orientated broadly southwest to northeast and crosses the River Liffey close to the line of the weir crossing. The subsoils are dominated by alluvium derived from the River Liffey while the existing land cover is dominated by artificial made ground. The promenade is situated in an area of high groundwater vulnerability.

4.2.3 Hydrology

The Demesne area occupies a section of the right-hand bankside of the River Liffey as it flows through Lucan. The Tobermaclugg Stream flows into the Liffey at the eastern end of this area. The lower section of the stream is highly modified being culverted under the western end of Lucan and flowing through an artificial channelised channel prior to its confluence with the Liffey.

4.2.4 Designated Conservation Areas

There are no European Sites (SACs or SPAs) or Natural Heritage Areas (NHAs) occurring in the vicinity of the Promenade. The Demesne Park Entrance area is located to the south of the Liffey Valley proposed NHA (pNHA) (see Figure 4.2 below). Ivy (*Hedera*



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Lucan Public Realm

Figure 4.2

Demesne Park Entrance & River Liffey pNHA

- Liffey Valley Lucan Demesne
- Liffey Valley (Site Code: 000128)



Drawn By	PD
Date	18/12/2021
Data Source	Bing

4.3 RECORDS FOR FAUNA & FLORA

The records of rare, threatened and protected fauna held by the NBDC were collated in December 2021. The area shown on Figure 4.3 below was searched for such records and all such species occurring within this area are listed in Table 4.1 below. The area shown on Figure 4.3 below encompasses both the Liffey Promenade and the Demesne Park Entrance.

Figure 4.3: Area of Search for Fauna and Flora Records



Table 3.1: List of Rare, threatened and or protected species occurring within the area of search

Species Type	Species	Record Date
bird	Little Egret (<i>Egretta garzetta</i>)	12/10/2017
flowering plant	Green Figwort (<i>Scrophularia umbrosa</i>)	10/07/2020
terrestrial mammal	Daubenton's Bat (<i>Myotis daubentonii</i>)	16/05/2008
terrestrial mammal	Lesser Noctule (<i>Nyctalus leisleri</i>)	02/08/2007

terrestrial mammal	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	16/05/2008
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Records of non-native invasive species were also collated and are presented in Table 3.2 below.

Table 3.2: Records for Non-native invasive species

Species Type	Species	Record Date
flowering plant	Indian Balsam (<i>Impatiens glandulifera</i>)	20/07/2019
flowering plant	Sycamore (<i>Acer pseudoplatanus</i>)	12/05/2018
terrestrial mammal	Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	05/09/2018

4.4 FIELD SURVEY RESULTS

4.4.1 Habitats at the Liffey Promenade

The land cover within the Promenade area includes artificial surfaces (buildings and artificial surfaces, BL3) in the form of paved areas and landscaped verges in the form of flower beds and borders (BC4). Figure 4.3 provides a map illustrating the extent and distribution of the above habitats at the Liffey Promenade.

The habitats occurring within the footprint of the promenade are of low ecological value and nature conservation importance (Rating E).

The non-native invasive plant species Himalayan Balsam is abundant along the right-hand bankside of the river to the north of the Liffey Promenade area.

4.4.2 Habitats at the Demesne Park Entrance




The habitats within the Demesne Park Entrance area is comprised entirely of buildings and artificial surfaces (BL3) in the form of the existing car park and hardstanding area that currently function as the set down and entrance to the park. Figure 4.4 provides a map illustrating the extent and distribution of the above habitats at the Demesne Park Entrance. Ivy (*Hedera*



Lucan Public Realm

Figure 4.3

Liffey Promenade Habitat Map

-  Landscape & Flower Beds BC4
-  Artificial Surfaces BL3
-  Liffey Promenade

0 0.0050.01 0.02 Km






Drawn By	PD
Date	18/12/2021
Data Source	Bing



Lucan Public Realm

Figure 4.4

Demesne Park Entrance Habitat Map

-  Stonewall BL1
-  Artificial Surfaces BL3
-  Liffey Promenade



Drawn By	PD
Date	18/12/2021
Data Source	Bing

This habitat is of low ecological value and nature conservation importance (Rating E).

To the north of the Demesne Park Entrance area the Liffey valley park is dominated by broad-leaved woodland habitat, that is principally comprised of non-native but naturalised species such as *Fagus sylvatica* and *Acer pseudoplatanus*. The woodland is representative of a mixed broad-leaved woodland habitat (WD1). The woodland further north of the Demesne Park Entrance on the slopes of the left-hand bankside of the River Liffey were surveyed as part of the National Survey of Native Woodlands in 2010. The woodland here were categorised as a mix of oak-ash-hazel woodland (WN2) and mixed broad-leaved woodland (WD1). The woodland vegetation community occurring at this woodland was categorised as *Fraxinus excelsior* - *Hedera helix* woodland group, *Acer pseudoplatanus* - *Crataegus monogyna* vegetation type.

The right-hand bankside of the river to the north of the Demesne Park Entrance was surveyed for the presence of green figwort, a species that is protected in Ireland, and has previously been recorded in the wider area within the Liffey Valley to the north of the Demesne Park Entrance. No example of this species was recorded along the river bankside to the north of the Demesne Park Entrance. Water figwort (*Scrophularia auriculata*) was identified along the bankside to the north. Another notable species recorded to the north of the Demesne Park Entrance along the right-hand bankside of the river during the 2021 surveys was ivy-broomrape (*Orobancha hederæ*). A total of 12 spikes were recorded in this area, approximately 40m to the north of the Demesne Park Entrance boundary.

The non-native invasive plant species Himalayan Balsam is abundant along the right-hand bankside of the river to the north of the Demesne Park Entrance area. The stands of this species are restricted to the bankside verge between the river path and the bankside to the north of the Demesne Park Entrance boundary.

The broadleaved woodland habitat occurring to the north of the Demesne Park Entrance represent a principal interest feature of the Liffey Valley pNHA and are of county to national ecological value (Rating C – B).

4.4.3 Fauna

An overview of the fauna supported by the site is outlined in the following sections. The nature conservation value of the site in supporting populations of fauna is also outlined in the following sub-section.

4.4.3.1 Non-Volant Mammals

An otter spraint was recorded at the opening of the culverted Tobermaglug Stream immediately upstream of its confluence with the River Liffey during the survey in April 2021.

No field signs indicating the presence of non-volant mammals were recorded during the surveys at the Liffey Promenade.

4.4.3.2 Volant Mammals – Bat

The bat species recorded along the Liffey Promenade was restricted to Soprano pipistrelles. A number of individuals (up to four counted at any one time) were observed foraging over the River Liffey adjacent to the Promenade.

Common pipistrelle and Soprano pipistrelle calls were registered within the Demesne Park Entrance area. Bat activity was low in this area. Further north within the woodland Soprano pipistrelle and Common pipistrelle activity increased. Daubenton's bat was recorded foraging along the River Liffey to north of the Demesne Park Entrance area.

The bridge abutment that accommodates the existing stairs to be removed does not have the potential to support roosting bats.

The masonry wall sections that will be removed within the Demesne Park Entrance area do not have the potential to support roosting bats.

4.4.3.3 Birds

Mallard are resident along the section of the River Liffey adjacent to the Promenade. Other waterbird species occurring include mute swan, moorhen, and grey heron.

A range of passerines were seen and heard within the Liffey Valley Park to the north of the project site. Species recorded include robin, blackbird, chiffchaff, great tit, blue tit, chaffinch, pied wagtail, song thrush, dunnoek, wren, tree-creeper, jackdaw and wood pigeon.

5.0 IMPACT ASSESSMENT

5.1 CONSTRUCTION PHASE

5.1.1 Designated Conservation Areas

The nearest conservation area to the project site is the Liffey Valley pNHA, within which the Liffey Promenade is located, while the Demesne Park Entrance is located approximately 10m to the south of the boundary of the pNHA. The area of the pNHA that overlaps the Liffey Promenade consists of artificial surfaces and habitats in the form of built land and landscaped planting. These habitats are of low biodiversity value and do not form part of the pNHA conservation interests.

The proposed works at the Liffey Promenade will not result in the loss of any natural habitats that could in turn result in direct negative impacts to the pNHA. The works associated with the Demesne Park Entrance are located outside the boundary of the pNHA and will not have the potential to result in direct negative impacts to this designated conservation area.

No other NHAs or pNHAs occur in the wider surrounding area and none will be at risk from the project.

The potential for the project to result in likely significant effects to European Sites has been examined as part of a screening report for Appropriate Assessment that accompanies this project and is provided under separate cover. The screening report has concluded that the project will not present a risk of likely significant effects to European Sites.

Minor quantities of potentially polluting materials will be required for the project. Such materials will include hydrocarbons for fuel and other construction solutions. No wet cement will be used on site during the construction works. The demolition of the existing stairs at the Liffey Promenade and the existing walls at the Demesne Park Entrance will have the potential to generate minor dust emissions.

In the event that potential polluting construction materials or sediment from the demolition works become entrained in surface water runoff, such runoff will naturally drain to the River Liffey.

The works required at the Liffey Promenade are very minor in scale and are not considered to have the potential to result in the generation of contaminated surface water runoff with potential to undermine the water quality of the River Liffey. The works as detailed in Section 2 above will comprise landscaping and planting and the provision of a new external stairway from the bridge to the promenade at river level. There will be no works to the promenade pathway itself or the river edge and as such all works will be buffered from the river edge by a minimum of 5m. In light of the above it is considered that the works at the Liffey Promenade will not present a significant pollution risk to the River Liffey water quality and the pNHA. Furthermore it is noted that additional best practice measures are outlined in Section 6 below that will further ensure that a pollution risk to the river and its water quality is avoided during works at the Liffey Promenade.

As noted in Section 4 above the presence of the non-native invasive plant species Himalayan Balsam has been identified along the section of the river adjacent to the Liffey Promenade. However, given that the project will not involve any works along the river bankside and will be buffered back from the bankside by a minimum of 5m there will be no potential for the works associated with the Liffey Promenade to result in the spread of this non-native invasive plant species downstream or within the Liffey Valley pNHA.

The works required at the Demesne Park Entrance are very minor in scale and are not considered to have the potential to result in the generation of contaminated surface water runoff with potential to undermine the water quality of the River Liffey. The works as detailed in Section 2 above will comprise the releveling of the existing surface on the N4 slip road side of the existing demesne wall, the removal of tarmac and the resurfacing of non-paved areas as well as the provision of other minor elements such as a steel portal and the removal of a portion of the existing park boundary wall. The elements of work required for the Demesne Park Entrance are considered to be small in scale and of a temporary nature. These works are also buffered from the nearest point of the River Liffey by approximately 25m. In light of the small scale and temporary works, located within an existing area of hardstanding and set back from the River Liffey by approximately 25m the works at the Demesne Park Entrance will not pose

a risk of generating significantly contaminated surface water runoff that could in turn perturb the water quality of the River Liffey and undermine the status of the River Liffey pNHA.

5.1.2 Habitat Loss

The works will not result in the loss of any green-field/semi-natural habitats. The works at the Liffey Promenade will involve the re-landscaping of existing flower beds and landscape planting. The works at the Demesne Park Entrance will involve the upgrade of existing hardstanding surveys. The works at both project locations will not have the potential to result in negative impacts to habitats of nature conservation value.

5.1.3 Disturbance to Habitats

As outlined above under Section 5.1.1 the project will not have the potential to result in significant negative impacts to the water quality and aquatic habitats of the River Liffey.

There will be no loss of fringing river habitat to the north of the Liffey Promenade as a result of the works proposed at this location.

There will be no loss of broadleaved woodland habitat occurring to the north of the Demesne Park Entrance.

The project will not result in any disturbance to the existing River Liffey bankside at either the Liffey Promenade or the Demesne Park Entrance and will not have the potential to result in the spread of the non-native invasive plant species Himalayan Balsam or disturbance to stands of native flora at the Demesne Park Entrance such as ivy-leaved broomrape.

5.1.4 Disturbance to/Loss of Habitat for Terrestrial Fauna

No breeding sites or resting places of protected terrestrial non-volant mammals such as otters were noted within or immediately adjacent to either of the project site.

Given the minor nature of the works at both project areas, the set back of the works from the River Liffey at the Demesne Park Entrance and the urban nature of the Liffey Promenade the works associated with the project at both locations will not have the potential to result in disturbance to otters.

The construction works at both locations will not pose a risk of impact to bat species.

The waterbird species occurring adjacent to the Liffey Promenade are habituated to high levels of human activity including the presence of humans along the promenade, traffic noise and other ongoing sources of urban activity. The temporary works required for the demolition of the existing stairs, the construction of the new stairs and the relandscaping at the Liffey Promenade is not predicted to have the potential to result in significant disturbance to the populations of wetland birds occurring adjacent to the promenade.

The minor works required at the Demesne Park Entrance are not predicted to have the potential to result in disturbance to bird species.

5.2 OPERATION PHASE

5.2.1 *Habitat Loss*

The operation phase of the development will not result in any further habitat loss within the project site.

5.2.2 *Impacts Terrestrial Fauna*

The operation phase of the project is not predicted to have the potential to result disturbance to protected terrestrial mammals or bird species. There will be no changes to the existing lighting regime at both locations and as such there will be no potential impact to bat species during the operation phase.

Once works are completed both locations will continued to be used as recreational spaces and as such there will be no change in land use during the operation phase that could result in negative impacts to fauna.

5.2.3 *Impacts to Aquatic Fauna*

The ongoing use of both locations as recreational areas and access to the Liffey Valley Park at the Demesne Park Entrance, will not have the potential to result negative impacts to aquatic habitats and water quality and the aquatic species supported by the River Liffey and its habitats.

6.0 MITIGATION MEASURES

The mitigation measures outlined in the following sections aim to ensure that a best practice approach during works is implemented.

6.1 MEASURES TO MINIMISE IMPACTS TO HABITATS & FAUNA

All construction work will be confined strictly to within the direct land-take of the proposed works.

Construction machinery will be restricted to site roads and the footprint of the proposed scheme.

Replacement and enhancement tree planting will be undertaken as part of the proposed landscaping for the Liffey Promenade. The landscaping design proposes to plant additional native broadleaved and pine woodland, including fruiting trees and the establishment of this planting will provide additional foraging resources of fauna. The establishment of such species will have the potential to result in positive effects for a range of fauna including invertebrates, birds, bats.

6.2 MANAGEMENT OF SURFACE WATER

In order to minimise the potential for pollution to storm waters generated on site the proposed approach to surface water management during the operation phase, as outlined in Section 2.2 above, will be implemented in full.

The management of surface water during the construction phase will adhere to the recommendations of the CIRIA guides *Control of Water Pollution from Construction Sites* (2001) and *Control of Water Pollution from Linear Construction Projects* (2006).

During construction key requirements for control of chemical pollution risk will include:

- Storage – all equipment, materials and chemicals will be stored away from any watercourse. Only minor quantities of fuels and other aqueous construction solutions will be held on site and these will be contained in bunded and secured containers held within a mobile COSHH store on site.

- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.
- All fuel oil fill areas will have an appropriate spill apron.
- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Where practicable, refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface watercourse;
- Maintenance – maintenance to construction plant will not be permitted on site, unless vehicles have broken down necessitating maintenance at the point of breakdown. All necessary pollution prevention measures will be put in place prior to commencement of maintenance in this instance;
- Concrete - No wet concrete operations will be required as part of the project works.
- Storm water will be directed to drains installed as part of the surface water management plan;

6.3 EVALUATION OF MITIGATION MEASURES

The mitigation measures outlined above for the construction and operation phase of the project are taken from established best practice guidelines that have been successfully implemented for a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

7.0 RESIDUAL IMPACTS

The proposed works at the Liffey Promenade and the Demesne Park Entrance are considered to be small in scale and do not pose a significant risk to biodiversity receptors. The implementation of the best practice construction measures as outlined above will further ensure

that the project does not result in disturbance to the River Liffey and its banksides and the spread of non-native invasive plant species.

With the implementation of these measures, the project will not have the potential to result in residual negative impacts to biodiversity.

REFERENCES

Fossitt J. A. (2000). A Guide to Habitats in Ireland. Heritage Council.

Heritage Council (2002). Draft Habitat Survey Guidelines. Heritage Council.

IEEM (2006). Guidelines for Ecological Impacts Assessment. IEEM.

JNCC (1993). Handbook for Phase I habitat survey. JNCC.

Neal E. & Cheeseman C. (1996). Badgers. Poyser Natural History. London.

NRA (2006a). Guidelines for assessment of ecological impacts of National Road Schemes. National Road Authority.