Refurbishment of Katharine Tynan House (Newlands Farm)

Ecological Impact Assessment (FINAL)

December 2021

Project No.: 2020s0950

Hibernia REIT Plc
1 WML Windmill Lane
DUBLIN
Co Dublin
D02 F206

JBA Project Manager

Bernadette O'Connell
Block 660, Unit 8
Greenogue Business Plaza
Greenogue Business Park
Rathcoole

DUBLIN Revision History

Revision Ref / Date Issued	Amendments	Issued to
S3-P01 / 26-11-2021	Draft Report	David Courage
A3-C01 / 02-12-2021	Final Report	David Courage

Contract

This report describes work commissioned by David Courage, on behalf of Hibernia REIT Plc, by a letter dated 8th October 2021. Malin Lundberg of JBA Consulting carried out this work.

Prepared by ..... Malin Lundberg, BSc, MSc
Ecologist

Reviewed by ..... Patricia Byrne, BSc (Hons), PhD, MCIEEM
Senior Ecologist

Purpose

This document has been prepared as a Final Report for Hibernia REIT Plc. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

JBA Consulting has no liability regarding the use of this report except to Hibernia REIT Plc.

Copyright

Carbon Footprint

A printed copy of the main text in this document will result in a carbon footprint of 305g if 100% post-consumer recycled paper is used and 388g if primary-source paper is used. These figures assume the report is printed in black and white on A4 paper and in duplex.

JBA is aiming to reduce its per capita carbon emissions.

Contents

List of Figures

List of Tables

Abbreviations

AA	Appropriate Assessment
BHIS	Built Heritage Investment Scheme
CIEEM	Chartered Institute of Ecology and Environmental Management
DoEHLG	Department of Environment, Heritage and Local Government
EC	European Communities
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
EU	European Union
NBDC	National Biodiversity Data Centre
NIAH	National Inventory of Architectural Heritage
NHA	Natural Heritage Area
NPWS	National Parks and Wildlife Service
pNHA	proposed Natural Heritage Area
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SDCC	South Dublin County Council
SPA	Special Protection Area
WFD	Water Framework Directive
WWTP	Waste Water Treatment Plant
ZOI	Zone of Influence

1 Introduction

JBA Consulting Ireland Ltd. has been commissioned by Hibernia REIT Plc to undertake an Ecological Impact Assessment (EcIA) in relation to the proposed refurbishment of Katharine Tynan House at Newlands Farm, Kingswood, Dublin. The development seeks to refurbish the house and gardens as a community centre.

1.1 Aims

The aims of this EcIA are to:

- Establish baseline ecological conditions to enable identification of potentially important ecological features within the zone of influence of the project
- Determine the ecological value of identified ecological features
- Assess the significance of impacts of the proposed project on ecological features of value
- Identify avoidance, mitigation or compensatory measures
- Identify residual impacts after mitigation and the significance of their effects
- Identify opportunities for ecological / biodiversity enhancement

1.2 The Existing Site

The Newlands Farm site is located next to the Red Cow LUAS stop in Dublin; west of the M50 and south of Naas Road (N7). The site is a greenfield site including fields of arable crop and pasture grazed by cattle. The derelict Katharine Tynan House is located in the south of Newlands Farm (Figure 1-1). Coolfan Stream runs approximately 400m north of the site in a west to east direction. Belgard Road is to the west of the site and Ballymount Road borders the site to the south.

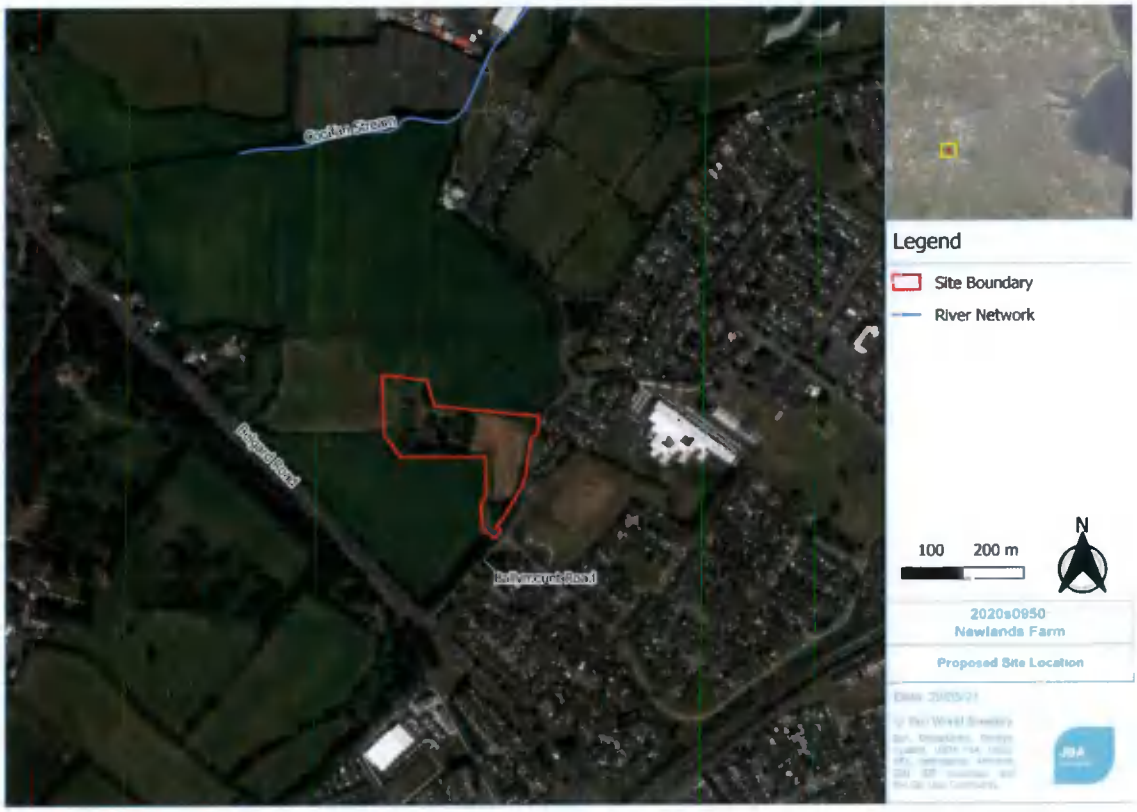


Figure 1-1: Site location (Source: EPA, 2021)

2 Project Description

2.1 The 'Project'

Katharine Tynan House, or 'Whitehall', Ballymount Road, Kingswood is listed as a protected structure in the South Dublin County Council (SDCC) Records of Protected Structures (RPS, ref. 197; SDCC, 2021). The Gate Lodge is also listed as a protected structure. 'White Hall', and its gate lodge at the entrance on Ballymount Road, are recorded in the National Inventory of Architectural Heritage (NIAH) survey (ref. 11210002; NIAH 2021). The structure has been unused for several decades, it is derelict and the outbuildings to the west have been demolished. Some of the garden walls and historic tree planting remain.

The development seeks to refurbish the house and gardens as a community use building. Uses will include cultural and community meetings, an education venue for local residents and schools, exhibitions, gardening/horticultural activities and community celebrations. The refurbishment will follow best conservation practice. Based on the site plan (Appendix A) the proposed site has an area of approximately 2.9 Ha.

To date a Heritage Assessment Report and a Condition Survey have been carried out, in liaison with the conservation officer. A successful application has been made to Built Heritage Investment Scheme (BHIS) to repair the damaged slate roof of the two-storey part of the house.

It is intended to build a single-storey, 423 sq m structure on the footprint of the former outbuildings to the west of the existing building. This outbuilding will be open to the yard on three sides to offer cover for activities such as a farmer's market and an outdoor seating area. It is also proposed that a 111 sq m outbuilding extension will be added to the existing building (floor area of 322 sq m). Once renovated, this will bring the existing buildings floor area to total of 433 sq m and in line with its former footprint. These newly constructed structures will augment the range of community activities that the development will offer. These structures are to be modest and in the character of vernacular outbuildings, and will house some additional functions such as toilets, storage, and catering facilities.

The development proposal seeks to use the existing agricultural entrance at Ballymount Road for vehicular traffic, this entrance also provides for cyclists and pedestrian access. Provision for 12 no. car parking spaces east of the historic walled garden which include 3 no. accessible parking spaces, 2 no. electrical points and provision for spill-over car parking and bus parking in the same location. Bicycle parking accommodating 16 no. bicycles will be located adjacent to the proposed car park. A tree survey for the site around the house and along the road has been carried out. Historic trees of quality will be retained, although some younger trees inhibiting construction will be removed. Along the road there are a number of Beech trees south of and beyond the safe viewing line of the entrance. It is proposed to remove self-seeded trees and hedges near the entrance to provide safe viewing lines at the entrance.

2.1.1 Methodology

The refurbishment will follow best conservation practice. The structure will retain its historic fabric and missing elements will be replaced to historic profiles. The site will be cleared of all self-seeded vegetation and prepared for replanting and community use. Trees identified as significant in the tree survey will be retained.

Duration of works is expected to last between 9 and 12 months.

2.1.2 Excavation depths

The excavation depths for this Project are proposed as follows:

- Trenches for drainage of foul and surface water disposal will be dug to approximately 750mm depth.
- Foundation depths for the outbuildings will be 1m deep and the floor of the structure and outbuilding yard will be dug out to 400mm depth.
- Roads and parking areas will be dug out to approximately 500mm depth.
- The installation of the surface water soakaway will involve excavation to approximately 2.6m depth.

2.1.3 Water supply and Drainage

The water supply to the proposed development will be provided through a new 100ø HDPE SDR 17 watermain connection to the existing watermain on Ballymount Road. A bulk water meter will be installed on site and connected to this supply. A connection application will be made to Irish Water in the normal way. There will be no need for water abstraction on site during construction or operational phase of the development.

Construction phase

Surface water will be locally attenuated on site with predefined areas of attenuation placed at the beginning of the project. Construction of the development's soakaway system will follow best practice guidance. These measures will be in line with the Greater Dublin Regional Code of Practice for Drainage Works (Dublin City Council, 2021). The first objective of the Code of Practice is compliance with best environmental practices and relevant environmental legislation such as the Water Framework Directive.

Operation Phase

Surface water drainage:

Areas of roofs of existing and reinstated buildings are to be positively drained via a storm drainage network to a stormtech attenuation chamber and passed through a petrol interceptor before being discharged to the local drainage ditch. Surface water from the road will drain to a filter drain with perforated pipe connecting to the attenuation chamber. The carpark and courtyard will be made of permeable surfaces and permeable paving with a minimum porosity of 30% to allow for infiltration of rainwater.

Foul water Drainage:

Due to levels, foul water will be pumped via a rising main to the existing local authority foul water sewer on Ballymount Road. This system connects with the greater Dublin city combined sewers. The water will be treated at Ringsend Waste Water Treatment Plant (WWTP), which has the capacity of 1.64 million PE, before being discharged at Poolbeg, 1km from the plant.

A complete water drainage layout plan is shown in Appendix B.

3 Methodology

3.1 The EcIA Team

This EcIA was completed by JBA Ecologist Malin Lundberg (BSc, MSc). The report has been reviewed by JBA Senior Ecologist Patricia Byrne (BSc (Hons), PhD, CIEEM). These staff members thus fulfil the Environmental Impact Assessment (EIA) Directive personnel requirements of 'competent persons'.

3.2 Policy and Legislation

Policy and legalisation for nature conservation; and protected and priority species relevant to the proposed project is provided in Appendix C.

3.3 Guidance

This assessment was conducted in accordance with the following guidance documents:

- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (Draft) Environmental Protection Agency (EPA, 2017).
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009a).
- Best Practice Guidance for Habitat Survey and Mapping, The Heritage Council. (Smith et al. 2011).

3.4 Baseline

To determine the baseline conditions at the site a review of all available information was made. When determining the pre-work conditions on-site, including the presence or absence of protected habitats and/or species, the precautionary principle was used where limited information was available. The following reports were consulted during this process:

- A desk-based assessment was carried out to collate information regarding protected/notable species and statutorily designated nature conservation sites in, or within close proximity to, the study area.
- A data search for protected and notable species was conducted using the National Biodiversity Data Centre (NBDC) Mapping System (NBDC, 2021). Four 2km grid squares surrounding the site were used to encompass the study area and species records were extracted from the map at a 2km² resolution.
- Information for statutory designated sites including Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Ramsar Sites, Natural Heritage Areas (NHAs) and proposed NHAs (pNHA) was collected from the online resources provided by the National Parks and Wildlife Service (NPWS).

Other information on the local area was obtained, including information form the following sources:

- NPWS (2019). The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- NPWS (2019b). The Status of EU Protected Habitats and Species in Ireland. Habitats Assessment Volume 2. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- NPWS (2019c). The Status of EU Protected Habitats and Species in Ireland. Species Assessment Volume 3. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- Environmental Protection Agency (EPA) online databases on water quality (Available online at https://gis.epa.ie/EPAMaps/).
- Aerial photography available from www.osi.ie and Google Maps http://maps.google.com/;

- All Ireland Red Data lists for vascular flora, mammals, butterflies, non-marine molluscs, dragonflies & damselflies, amphibians and fish;
- Water Framework Directive (WFD) water maps (available online at http://www.wfdireland.ie/maps.html and https://www.catchments.ie/); and
- International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species (available online at http://www.iucnredlist.org).

3.4.1 Zone of Influence

The zone of influence (ZoI) for the project is based on a judgement of the likely extent of the ecological impacts. This will vary for different ecological features, depending on their sensitivities to environmental change. For the majority of the project, impacts will be limited to within the site boundary. However, for impacts relating to airborne emissions and ground water, the ZoI is extended to 10km and for surface water pathways it is extended 15km for statutory designated sites (Natura 2000 sites).

3.4.2 Field Surveys

Ecological baseline surveys were carried out in the area within and directly adjacent to the proposed development site, and the presence or likely presence of protected species, and the presence of good potential habitats for those species. All site visits, dates, survey team and field survey methodology are summarised in Table 3-1.

3.4.2.1 Habitat survey and baseline ecology

An ecological walkover of the site was carried out on the 07/08/2020 and 11/08/2020 by William Mulville and Malin Lundberg of JBA Consulting to inform the ecological baseline of the site. The survey recorded habitats, flora, and invasive alien plant species, as well as surveying for protected species.

Aerial photographs and site maps assisted the habitat survey. Habitats have been named and described following A Guide to Habitats in Ireland by Fossitt (2000). Nomenclature for higher plants principally follows that given in Webb's An Irish Flora (Parnell and Curtis, 2012).

3.4.2.2 Bat Surveys

Preliminary Bat Roost Survey

A preliminary bat roost survey was conducted by JBA Ecologists on the 07/08/2020 and 11/08/2020. During this walkover survey the ecologists also recorded (from ground level) the suitability of habitats for bats for foraging and commuting purposes; identified and assessed potential roost features (PRFs) present on the proposed site; and assigned a level of suitability to each based on best practice guidance (Collins, 2016).

Internal and External Bat Roost Inspection

A detailed internal and external inspection of the buildings on site was carried out on 10/03/2021 by JBA Ecologists Malin Lundberg and Karen van Dorp to determine the presence of potential roost features (PRFs). Evidence of bat activity associated with potential roost sites were recorded, including bat droppings, urine staining, feeding remains (e.g. moth wings), scratch marks and dead/alive bats. Potential roosting features were noted and assessed, including cracks, crevices, and roof voids and/or areas of missing mortar in the buildings. The results of the survey determined the amount and frequency of follow-up surveys required to fully assess bat activity within the site, as per the guideline instructions outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition) (Collins, 2016).

Emergence/re-entry Survey

Bat emergence and re-entry surveys of Katherine Tynan House were carried out during the active bat season 2021 to identify if the building is used as a bat roost. Detailed dates are provided in Table 3-1. The viewpoints targeted the potential exit and entrance locations for bats on the building. The survey carried out at dusk started 15 minutes before sunset and ended 2 hours after sunset. The survey carried out at dawn started 2 hours before dawn and ended 15 minutes after dawn, as per survey guidelines (Collins, 2016).

The first floor of Katharine Tynan House could not be accessed due to instability of the building and was surveyed from the ground floor of the building.

Transect Activity Surveys

Transect activity surveys were carried out at three occasions within the proposed site during the active bat season 2021. Detailed dates are provided in Table 3-1. Recordings and visual observations were noted throughout the survey to identify usage of the site.

At each survey occasion, a static bat detector was installed and left for a minimum of five nights to record bat activity. Data collected by the static bat detectors was analysed using AnalookW software.

Table 3-1: Surveys carried out at Newlands Farm.

Survey	Date	Survey method reference
Fossitt Habitat and flora	7 August 2020, 11 August 2020	Best Practise Guidance for Habitat Survey and Mapping, by the Heritage Council (Smith et al., 2011a); Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009b)
Mammal Survey	7 August 2020, 11 August 2020	Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (NRA, 2009b)
Preliminary bat roost Survey	7 August 2020, 11 August 2020	Bat Surveys for Professional Ecologists (Collins, 2016)
Internal and External Bat Roost Inspection	10 March 2021	
Bat Emergence/Re-entry Survey	19 May 2021 10 June 2021	
Transect Activity Surveys	19 May 2021 10 June 2021 13 July 2021	

3.5 Screening of Ecological Features

The ecological features identified during the walkover surveys and from desk-based assessments were reviewed.

An EIA screening has not been prepared, so an informal screening process is presented at the start of the results section to ensure that the assessment focuses only on features where the impact could have important consequences for biodiversity (valued ecological features). Any features which are important beyond the site level were identified for further evaluation. Ecological features with little or no value beyond the site level were screened out and a short statement explaining this is given in the screening section.

A separate bat report has been produced (Appendix D), assessing bat activity within the site and bat species present. It identifies potential impacts the proposed development may have on bats and proposes mitigation measures. The results of the bat report have informed this EcIA.

An Appropriate Assessment (AA) Screening Report has been produced separate to this EcIA (JBA, 2021a), to assess the potential for effects on designated Natura 2000 sites. This AA Screening Report was submitted at planning application stage. The AA Screening Report concluded there would be no likely significant effects on European sites arising from the proposed development, either alone or in-combination with other plans or projects. Natura 2000 sites are therefore not considered in this report.

3.6 Assessment of the Effects on Features

Ecological features include nature conservation sites, habitats, species assemblages/communities, populations or groups of species. The assessment of the significance of predicted impacts on ecological features is based on both the 'value' of a feature, and the nature and magnitude of the impact that the project will have on it. The impact is based on the project which includes a certain amount of designed-in mitigation, including construction best practice measures that will be implemented with a high degree of certainty.

3.7 Valuation of Receptors

The value of designated sites, habitats and species populations is assessed with reference to:

- Their importance in terms of 'biodiversity conservation' value (which relates to the need to conserve representative areas of different habitats and the genetic diversity of species populations)
- Any social benefits that habitats and species deliver (e.g. relating to enjoyment of flora and fauna by the public)
- Any economic benefits that they provide

The valuation of designated sites considers different levels of statutory and non-statutory protection. Assessment of a habitat depends on several factors, including the size of the habitat, its conservation status and quality. The assessment also takes account of connected off-site habitat that may increase the value of the on-site habitat through association. Valuation of species depends on a number of factors including distribution, status, rarity, vulnerability, and the population size present.

Designated sites, habitats and species populations have been valued using the scale in Table 3-2.

Table 3-2: Examples of criteria used to define the value of ecological feature.

Level of Value	Examples of Criteria
International	An internationally important site e.g. Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar (or a site considered worthy of such designation). A regularly occurring substantial population of an internationally important species (listed on Annex IV of the Habitats Directive). Designated shellfish waters. Major fisheries area.
National	A nationally designated site e.g. Natural Heritage Area (NHA), a proposed Natural Heritage Area (pNHA), statutory Nature Reserve, or a site considered worthy of such designation. A viable area of a habitat type listed in Annex I of the Habitats Directive or of smaller areas of such habitat which are essential to maintain the viability of a larger whole. A regularly occurring substantial population of a nationally important species, e.g. listed on The Wildlife Act 1976 or The Wildlife (Amendment) Act 2000. A species included in the Irish Red Data Lists/Books. Significant populations of breeding birds.
Regional/County (South Dublin County)	Species and habitats of special conservation significance within South Dublin County. An area subject to a project/initiative under the County's Biodiversity Action Plan. A regularly occurring substantial population of a nationally scarce species.
Local (works site and its vicinity)	Areas of internationally or nationally important habitats which are degraded and have little or no potential for restoration. A good example of a common or widespread habitat in the local area. Species of national or local importance, but which are only present very

	infrequently or in very low numbers within site area.
Less than local	Areas of heavily modified or managed vegetation of low species diversity or low value as habitat to species of nature conservation interest. Common and widespread species.

Ecological Valuation may also be considered of Local Importance (higher value) or Local Importance (lower value) (Table 3-3).

Table 3-3: Examples of criteria used to define the value of ecological features of local importance (NRA, 2009a)

Level of Value	Examples of Criteria
Local Importance (higher value)	Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared. Resident or regularly occurring populations (assessed to be important at the Local level) of the following: *Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; *Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; *Species protected under the Wildlife Acts; and/or *Species listed on the relevant Red Data List. Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value
Local Importance (lower value)	Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; Sites or features containing non-native species that are of some importance in maintaining habitat links

3.7.1 Magnitude of Impacts

Ecological effects or impacts can be described and categorised in a number of ways. Examples of relevant terms are listed in the table below.

Table 3-4: Categories of Effects (derived EPA, 2017).

Effects	Categories of effects
Quality of Effects	**Positive Effects** A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
	Negative/adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

Probability of Effects	**Likely Effects** The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration and Frequency of Effects	**Temporary Effects** Effects lasting less than a year
	Short-term Effects Effects lasting one to seven years
	Medium-term Effects Effects lasting seven to fifteen years
	Long-term Effects Effects lasting fifteen to sixty years.
Types of Effects	**Indirect Effects** (a.k.a. Secondary Effects) Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
	'Do-Nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents,

These factors are assessed together to determine the magnitude of the impact on the status of a habitat or species population, and on the integrity of the site that supports them. Professional judgement is then used to assign the impacts on the receptors to one of four classes of magnitude, detailed in Table 3-5.

Table 3-5: Definition of magnitude.

Level of Value	Examples of Criteria
High	An irreversible or long-term impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to enhance its conservation status.
Medium	A medium to long-term impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group, which if adverse, is unlikely to threaten its sustainability (or if beneficial, is likely to be sustainable but is unlikely to enhance its conservation status.
Low	A short-term but temporary impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group

	that is within the range of variation normally experienced between years.
Negligible	A short-term but temporary impact on the integrity of a site or conservation status of a habitat, species assemblage/community, population or group that is within the normal range of annual variation.

3.7.2 Significance of Impacts

The significance of an impact is a product of the value of the ecological feature and the magnitude of the impact on it, moderated by professional judgement. Table 3-6 below shows a matrix which is used for guidance in the assessment of significance, with impacts being considered to be of major, moderate or minor significance, or negligible. Impacts can also either be assessed as positive or negative using the same matrix.

Table 3-6: Significance of impacts matrix.

Value of feature	Magnitude of impact			
	High	Medium	Low	Negligible
International	Major	Major	Moderate	Neutral
National	Major	Moderate	Minor	Neutral
Regional / County	Moderate	Minor	Minor	Neutral
Local	Minor	Minor	Negligible	Neutral
Less than local	Negligible	Negligible	Negligible	Neutral

3.7.3 Residual Impacts

The project is assessed including some designed-in mitigation. This is done where mitigation is proven to be effective and will be implemented effectively with a high certainty. Where significant residual impacts are still identified, further mitigation measures will be proposed as part of the Ecological Impact Assessment process to avoid, reduce or minimise them. Each impact assessment section assigns a final significance level to the impact described, which considers and includes the implementation of any stated mitigation measures; these are the residual impacts.

3.8 Cumulative Impacts

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features. Potential sources of cumulative impacts were sought within an area where there is the potential for a significant impact on a site or species.

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

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

3.9 Limitations and Constraints

This EcIA is based on a site visit and existing data from the above-mentioned sources. The report necessarily relies on some assumptions and is inevitably subject to some limitations. These do not affect the conclusion, but the following points are recorded in order to ensure the basis of the assessment is clear:

- Changes to the site since surveys were undertaken cannot be accounted for, however the site surveys have followed the CIEEM guidance provided on suitable lifespan for surveys ((CIEEM (2019) Advice note on the lifespan of ecological reports and surveys). Significant changes to the site are unlikely in the time between the site visit (September 2021) and likely determination date (2022).
- Adverse weather can cause delays to the schedule and alter the timing of works. This has been accounted for using a worst-case scenario where possible.

4 Baseline Conditions

These baseline conditions present information gathered from existing reports and desk-based sources as detailed in Section 3.4 and the site visits detailed in Section 3.4.2.

4.1 Desk Based Assessment

4.1.1 Designated Sites

This section lists the designated sites of International and National importance. The ZoI for this project is 10km for non-statutory designated sites (proposed and existing Natural Heritage Area) and statutory designated sites (SPA/SAC). However, the ZoI via surface water pathways is extended to 15km for statutory designated sites. Table 4-1 below lists these designated sites with their respective importance and distance from the proposed site development. Figure 4-1 displays the locations of the statutory designated sites, with Figure 4-2 displaying the non-statutory designated sites within the ZoI of the site.

Table 4-2 summarises the site briefs and ecological features of exclusively proposed Natural Heritage Areas within the ZoI,

As the Natura 2000 sites are assessed in the AA Screening report, they are not described in detail here but site briefs, qualifying interests and threats and pressures are provided in Appendix E.

Table 4-1: Proximity and importance of designated sites within the ZoI of the proposed development.

Name	Designation	Importance	Distance from site
Glenasmole Valley SAC [001209]	SAC	International	5.3km
Wicklow Mountains SAC [002122]	SAC	International	7.7km
Wicklow Mountains SPA [004040]	SPA	International	9.2km
Rye Water Valley/Carton SAC [001398]	SAC	International	9.8km
South Dublin Bay SAC [000210]	SAC	International	11.4 km
South Dublin Bay and River Tolka Estuary SPA [004024]	SPA	International	11.4 km
North Dublin Bay SAC [000206]	SAC	International	14.5 km
North Bull Island SPA [004006]	SPA	International	14.4 km
Grand Canal [002104]	pNHA	National	2.3 km
Dodder Valley [000991]	pNHA	National	3.1 km
Lugmore Glen [001212]	pNHA	National	4.2 km
Liffey Valley [000128]	pNHA	National	5.3 km
Glenasmole Valley [001209]	pNHA	National	5.1 km
Slade Of Saggart And Crooksling Glen [000211]	pNHA	National	6.4 km
Royal Canal [002103]	pNHA	National	7.9 km
Rye Water Valley/Carton [001398]	pNHA	National	9.6 km

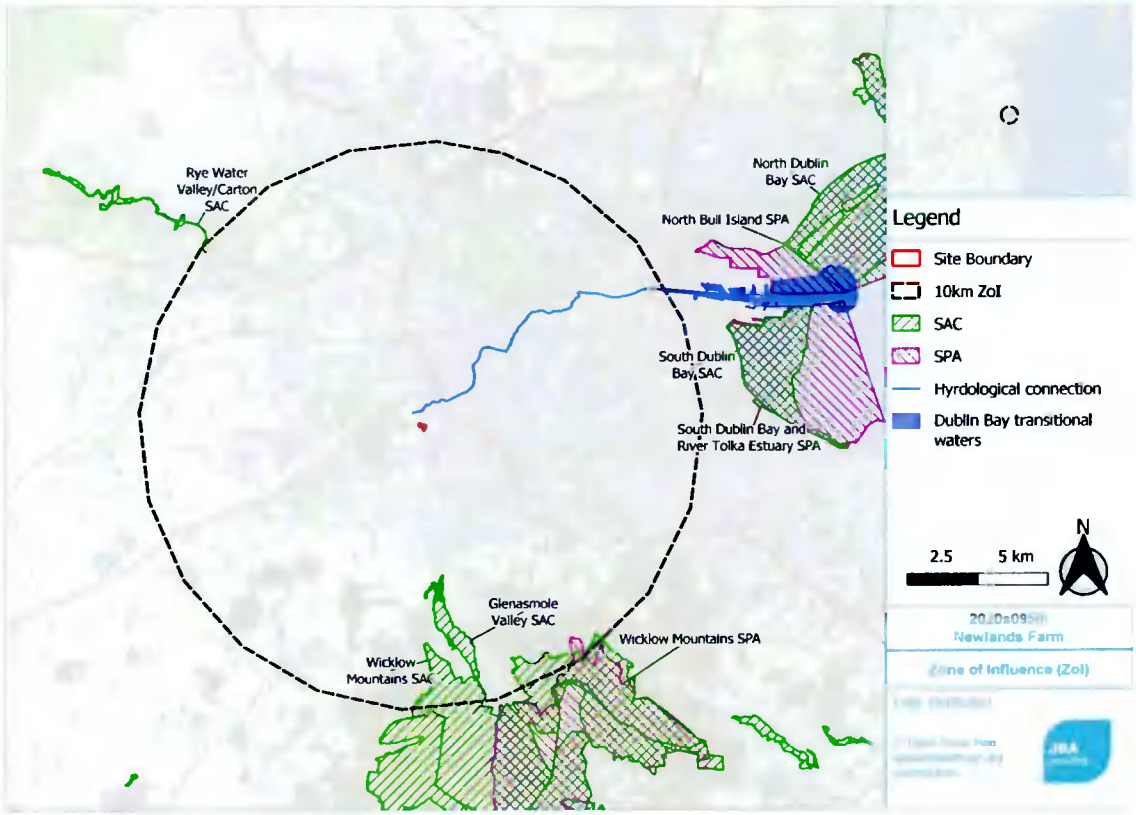


Figure 4-1: Statutory designated sites within the ZoI of the development

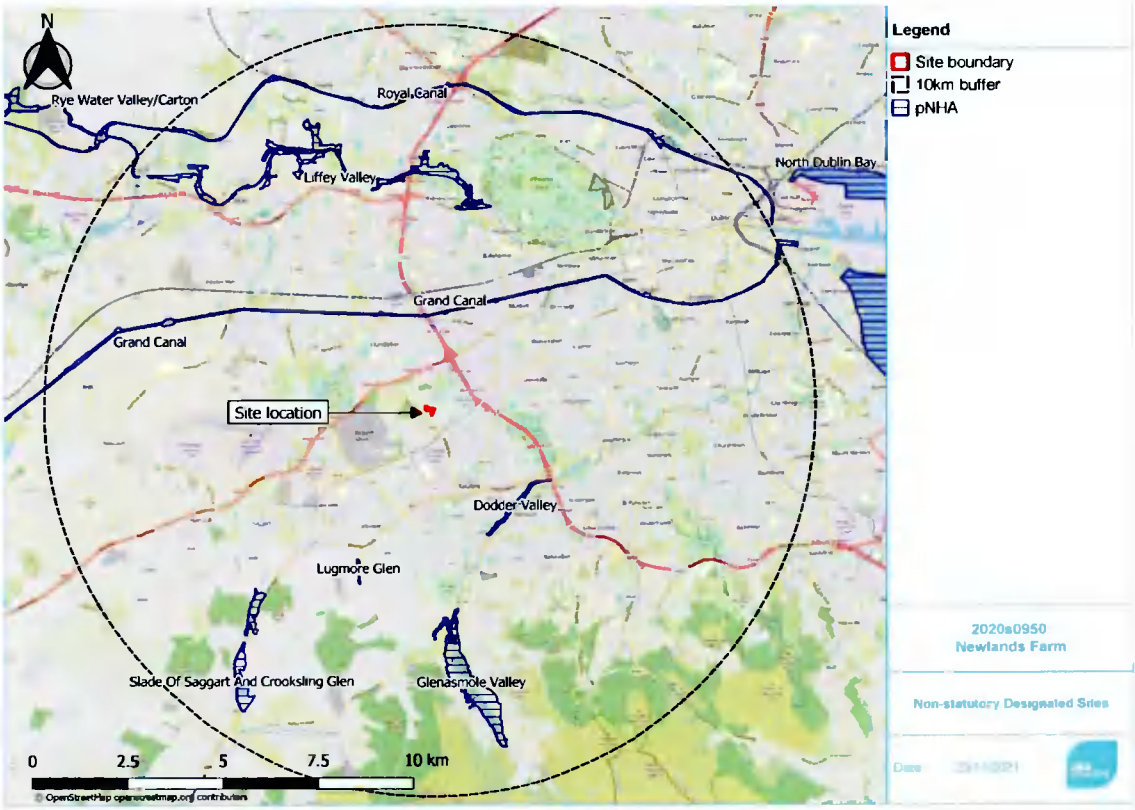


Figure 4-2: Non-statutory designated sites within the ZoI of the development

Table 4-2: Site briefs and ecological features of proposed Natural Heritage Areas within their respective 5km ZoI.

Site Name	Brief	Ecological Features of Conservation Concern
Grand Canal pNHA	The Grand Canal is a man-made waterway linking the River Liffey at Dublin with the Shannon at Shannon Harbour and the Barrow at Athy. The Grand Canal pNHA comprises the canal channel and the banks on either side of it. A number of different habitats are found within the canal boundaries - hedgerow, tall herbs, calcareous grassland, reed fringe, open water, scrub and woodland. The diversity of the water channel is particularly high in the eastern section of the Main Line - between the Summit level at Lowtown and Inchicore. Otter spraints are found along the towpath, particularly where the canal passes over a river or stream. The Smooth Newt (*Lissotriton vulgaris*) breeds in the ponds on the bank at Gollierstown in Co. Dublin. The rare and legally protected Opposite-leaved Pondweed (*Groenlandia densa*) (Flora Protection Order 1987) is present at a number of sites in the eastern section of the Main Line, between Lowtown and Ringsend Basin in Dublin (NPWS, 2009a).	- Otter (*Lutra lutra*) - Smooth Newt (*Lissotriton vulgaris*) - Opposite-leaved Pondweed (*Groenlandia densa*)
Dodder Valley pNHA	This stretch of the River Dodder extends for about 2 km between Firhouse Bridge and Oldbawn Bridge in the south-west of Dublin City. The vegetation consists of woodland scrub mainly comprising Willows spp., but up to thirteen species of tree have been recorded. The understorey vegetation contains a good variety of plant species, including Early-purple Orchid (*Orchis mascula*) and Bugle. Along the banks there are wildflower meadows with a good diversity of plant species. Forty-eight bird species have been recorded recently in the area, including Little Grebe (*Tachybaptus ruficollis*), Kingfisher (*Alcedo atthis*), White-throated Dipper (*Cinclus cinclus*) and Grey Wagtail (*Motacilla cinerea*). Part of the riverbank supports a Sand Martin (*Riparia riparia*) colony of up to 100 pairs. The site also supports a population of Otter. The site represents the last remaining stretch of natural riverbank vegetation on the River Dodder in the built-up Greater Dublin Area (NPWS, 2009b).	- Little Grebe (*Tachybaptus ruficollis*) - Kingfisher (*Alcedo atthis*) - Grey Wagtail (*Motacilla cinerea*) - Sand Martin (*Riparia riparia*) - Otter (*Lutra lutra*)
Lugmore Glen pNHA	This small wooded glen is located about 2km south-east of Saggart in Co Dublin. It is quite a narrow valley cut in glacial drift. A small stream winds through the valley. The wood is mainly comprised of dense Hazel (*Corylus avellana*) but also contains Ash, Elder (*Sambucus nigra*) and Blackthorn (*Prunus spinosa*). The herb layer is quite rich, especially towards the stream, with species such as Wood-sorrel, Bugle (*Ajuga reptans*), Primrose (*Primula vulgaris*), Honeysuckle (*Lonicera periclymenum*), Bluebell (*Hyacinthoides non-scripta*), Ivy (*Hedera hibernica*), Wood-sedge (*Carex sylvatica*), Woodruff (*Galium odoratum*) and Wood Speedwell occurring. The importance of this site is that it is a fine example of a wooded glen with a good representation of woodland plants. The flora of the site is notable for the presence of the rare Red Data Book species, Yellow Archangel (NPWS, 2009c).	- Yellow Archangel (*Lamiastrum galeobdolon*) - Deciduous woodland
Liffey Valley pNHA	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 (NPWS, 2009d). Terrestrial habitats include mixed deciduous woodland on both sides of the river, with willow and Alder fringing the river in places.	- River - Woodland - Marsh
Glenasmole Valley pNHA	As per the Natura 2000 SAC description.	As per those outlined in Natura 2000 SAC description.
Slade Of Saggart And Crooksling	This site is located in the south-west of Co. Dublin. The northern half of the site comprises a river valley with steep tree-covered sides, while the southern side is flatter and contains two small lakes, the Brittas Ponds. The wooded areas have a well-developed ground flora. Brittas Ponds is a Wildfowl Sanctuary. (NPWS,	- Lake - River - Woodland

Site Name	Brief	Ecological Features of Conservation Concern
Glen pNHA	2009e)	
Royal Canal pNHA	The Royal Canal is a man-made waterway linking the River Liffey at Dublin to the River Shannon near Tarmonbarry. The canal pNHA comprises the central channel and the banks on either side of it. The rare and legally protected Opposite-leaved Pondweed (Groenlandia densa) (Flora Protection Order 1987) is present at one site in Dublin, between Locks 4 and 5. Tolypella intricata (a stonewort listed in the Red Data Book as being vulnerable) is also in the Royal Canal in Dublin, the only site in Ireland where it is now found (NPWS, 2009f).	
Rye Water Valley/Carton pNHA	As per the Natura 2000 SAC description.	As per the Natura 2000 SAC description.

4.1.2 Screening of Designated Sites

4.1.2.1 Natura 2000 sites

An AA Screening has been carried out for this project by JBA (2021a). Following initial screening, and based upon best scientific judgement it is concluded that there will be **no likely significant effects** from the project on the following Natura 2000 sites within the AA Screening ZoI, either alone or in combination with any other plans or projects:

- Glenasmole Valley SAC (001209)
- Wicklow Mountains SAC (002122)
- Wicklow Mountains SPA (004040)
- Rye Water Valley / Carton SAC (001398)
- South Dublin Bay SAC (000210)
- South Dublin Bay and River Tolka Estuary SPA (004024)
- North Dublin Bay SAC (000206)
- North Bull Island SPA (004006)

4.1.2.2 Proposed Natural Heritage Areas

Glensamole Valley pNHA and Rye Water Valley / Carton pNHA are located within Glensamole Valley SAC and Rye Water Valley / Carton SAC respectively. These pNHAs have the same receptors as the Natura 2000 sites. The AA Screening (JBA, 2021a) concludes that due to the site location, distance to the Natura 2000 sites and nature of the works, impacts are not anticipated on the Natura 2000 sites. As the pNHAs have the same receptors, they are covered by the assessment in the AA Screening report and are not considered to be impacted.

The proposed site does not have a surface water pathway with any of the pNHAs, as such there is no potential for surface water impacts.

The only sites considered to potentially be impacted via air pathways and groundwater pathways are the Grand Canal pNHA and Dodder Valley pNHA due to their close location to the site.

Therefore, as there are no direct pathways between the site and the pNHA sites, the following pNHA sites are **screened out**:

- Lugmore Glen [001212]
- Liffey Valley [000128]
- Glenasmole Valley [001209]
- Slade of Saggart And Crooksling Glen [000211]
- Royal Canal pNHA [002103]
- Rye Water Valley / Carton pNHA [001398]

The following pNHAs are **screened in**:

- Grand Canal [002104]
- Dodder Valley [000991]

4.2 Results of Site Visit

An ecological walkover survey was conducted on the 07/08/2020 and 11/08/2020 by JBA Ecologists. Detailed bat surveys were subsequently carried out on 10/03/2021, 19/05/2021, 10/06/2021 and 13/07/2021. Habitats and species recorded at the site are presented in detail in the following sections. The value of each habitat is based on recordings from the site visit, following the criteria set out in Table 3-3.

4.2.1 Habitats

Habitats recorded are listed in Table 4-3 and detailed descriptions are provided in the sections below. Habitat maps are provided in Figure 4-3.

Table 4-3: List of habitats recorded on site

Habitat	Fossitt Code
Arable crops	BC1
Stone walls and other stonework	BL1
Buildings and artificial surfaces	BL3
Recolonising bare ground	ED3
Drainage ditches	FW4
Improved agricultural grassland	GA1
(Mixed) broadleaved woodland	WD1
Hedgerows	WL1
Treelines	WL2

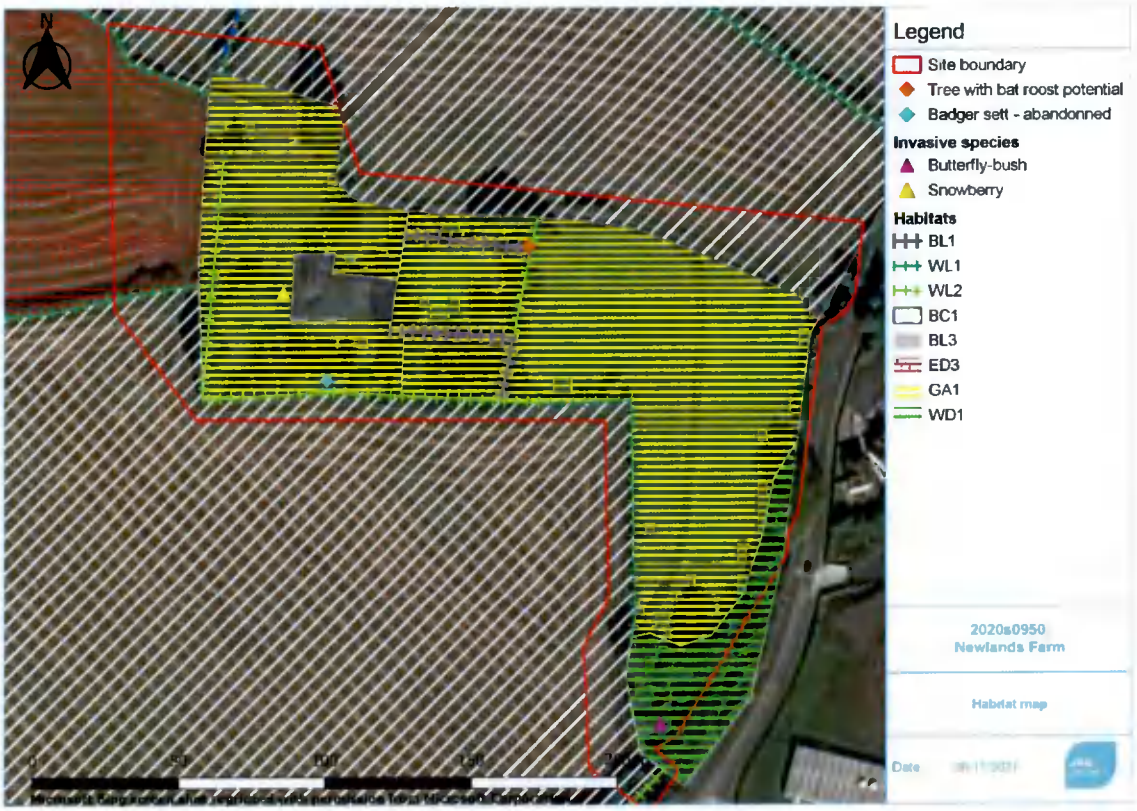


Figure 4-3: Habitat Map of the area around Katherine Tynan House.

4.2.2 BC1 - Arable crops

There are several fields of arable crops surrounding the site. These are all bounded by treelines and hedgerows (Figure 4-4).

This habitat is considered to be of less than local importance.

Figure 4-4: Arable crop with treeline boundary.

4.2.3 BL1 - Stone walls and other stonework

Stonewalls are surrounding Katherine Tynan House. In some places the walls are in a bad state and stones are falling off.

This habitat is considered to be of less than local importance.

4.2.4 BL3 - Buildings and artificial surfaces

Katherine Tynan House is a derelict building located at the centre of the site (Figure 4-5).

There is an access road going from Ballymount Road to the house. The road is made of sand and gravel and provides access for farm machinery to the fields.

The initial survey identified the building to have bat roost potential. However, following the bat emergence/re-entry surveys of the building it was confirmed that it is not used as a roost by bats (see Section 4.4.2).

This habitat is therefore considered to be of less than local importance.

Figure 4-5: Derelict building (Katherine Tynan House).

4.2.5 ED3 - Recolonising bare ground

The field west of the site which seemed to previously have been under arable use has been left unsown and is now being naturally recolonised by ruderal species (Figure 4-6). Species growing here include Poppy *Papaver rhoeas*, Hawkweed *Hieracium* spp., Herb Robert *Geranium robertianum*, Redshank *Persicaria maculosa*, Colt's-foot *Tussilago farfara*, False Oat-grass *Arrhenatherum elatius*, Willowherb *Epilobium* spp., Speedwell *Veronica* spp. and Scarlet Pimpernel *Anagallis arvensis*.

The recolonising ground is likely to provide foraging habitat for bats.

This habitat is therefore considered to be of local (higher) importance.

Figure 4-6: Recolonising bare ground

4.2.6 FW4 - Drainage ditches

There is a dry drainage ditch at the north-western end of the proposed site, running in a northerly direction and connects with the Coolfan Stream. The drainage ditch is within the hedgerow and may hold water during part of the year.

As the drainage ditch may hold water during part of the year, it may provide suitable habitat for Common Frog *Rana temporaria*.

This habitat is considered to be of local (higher) ecological importance.

4.2.7 GA1 - Improved agricultural grassland

There are some smaller fields of improved agricultural grassland around Katherine Tynan House (Figure 4-7). These fields are not intensively managed and the grassland is becoming naturalised.

Plant species assemblages include False Oat-grass, Cock's-foot *Dactylis glomerata*, Nettles *Urtica dioica*, Perennial Rye-grass *Lolium perenne*, Yorkshire Fog *Holcus lanatus*, Vetches *Vicia* spp., Creeping Buttercup *Ranunculus repens*, Dandelions *Taraxacum* spp., Willowherb, Common Poppy, Flax *Linum utisatissimum*, Rape *Brassica napus*, Docks *Rumex* spp. and Chamomile *Chamaemelum nobile*.

There is one mature Monterey Cypress *Cupressus macrocarpa* in the grassland southeast of the house.

The grasslands provide foraging habitat for bats.

This habitat is considered to be of local (higher) ecological importance.

Figure 4-7: Improved grassland bounded by stonewall.

4.2.8 WD1 - (Mixed) broadleaved woodland

There is a mixed broadleaved woodland along Ballymount Road (Figure 4-8). This woodland consists of a mix of native and non-native species, including Ash *Fraxinus excelsior*, Elder *Sambucus nigra*, Beech *Fagus sylvatica* and Pine *Pinus* spp. The understory is dense and is dominated by Hedge Bindweed *Calystegia sepium*, Vetches, False Oat-grass and Bramble *Rubus fruticosus* agg. There is also a larger stand of Butterfly-bush *Buddleja davidii*.

This habitat is considered to be of local (higher) ecological importance.

Figure 4-8: Mixed broadleaved woodland.

4.2.9 WL1 - Hedgerows

Hedgerows occur as field boundaries, mainly between arable crops but also along the southern boundary of the proposed site. Species include Elder, Elm *Ulmus* spp., Hazel *Corylus avelana*, Blackthorn *Prunus Spinosa*, Dog Rose *Rosa canina*, Willows *Salix* spp. and saplings of Ash and Sycamore *Acer Pseudoplatanus*. The understory consists of Nettles, Thistles *Cirsium* spp. and Hedge Bindweed.

In some of the hedgerows there were signs of mammal activity and foraging.

This habitat is considered to be of local (higher) ecological importance.

4.2.10 WL2 - Treelines

Treelines occur east, west and south of Katherine Tynan House. The trees are generally mature with species including Sycamore, Ash, Hawthorn *Crataegus monogyna*, Elder, Elm, Holly *Ilex aquifolium* and Hazel. Many of the trees are covered with Ivy *Hedera hibernica*. The understory consists of Bramble, Hogweed *Heracleum sphondylium*, Vetches, Hedge Bindweed, Dog Rose, Lords-and-ladies *Arum maculatum*, Thistles, False Oat-grass, Horsetail *Equisetum* spp. and False Brome *Brachypodium sylvaticum*.

A disused Badger *Meles meles* sett was recorded in the southern treeline.

This habitat is considered to be of local (higher) ecological importance.

4.3 Flora

No protected floral species were recorded by JBA ecologists during the ecological walkover survey of the proposed site. The NBDC (2021) records were referenced and no occurrence of protected floral species has been recorded within the site's boundary to date.

4.4 Fauna

Records of protected fauna including invertebrates, amphibians, fish, birds and mammals collated from the NBDC (2021) database, present within the surrounding four 2km squares (O02U, O02Z, O03Q, O03V) within the past 10 years are listed in Appendix E. This list includes their level of protection, if they are red or amber listed on the International Union for the Conservation of Nature and Natural Resources (IUCN) Red List and the date of the last record of this species at this location.

4.4.1 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 Marten *Martes martes*

Badger, Hedgehog and Pygmy Shrew

Badger, Hedgehog and Pygmy Shrew are likely to use the site for commuting and foraging activities.

Evidence of prior Badger habitation was recorded during the site survey. A Badger sett entrance was recorded in the treeline along the southern boundary of the site (Figure 4-3). The entrance had not been used recently, with leaves and wood debris covering part of the entrance; and so would be designated as inactive.

Due to the presence of suitable habitats, the site is considered to be of higher local importance for these mammals.

Pine Marten

This mammal is a woodland specialist and given the location of the site, in the outskirts of the urban area with presence of woodlands north and west of the site, there is potential for Pine Marten to occur within the site. The site can be considered of local (lower) importance for Pine Marten.

Otter

No signs of Otter *Lutra lutra* were recorded within the site. River Otter is not likely to be present within the site due to the absence of watercourses. The site can be considered of less than local importance for Otter.

4.4.2 Bats

Below are summaries of the findings from the bat surveys. Detailed assessment is provided in separate bat report (Appendix D).

Roosting Habitat

The initial bat surveys (preliminary bat roost survey, and internal and external roost inspection) identified roosting features at Katherine Tynan House and a mature Beech.

The Beech was identified as having Low bat roost potential. The tree is in good condition, with no broken limbs. The tree stem is covered in Ivy and no holes were recorded.

Katherine Tynan House has numerous cracks and several large entrance openings in the external part of the building which, as well as the chimneys present internally, showed Moderate bat roost potential.

Emergence and re-entry surveys were carried out on Katherine Tynan house. No bats were recorded to emerge or enter the building and therefore it is unlikely this site is used by roosting bats. Therefore, it is of negligible importance for roosting bats.

Foraging and Commuting Habitat

Bats use linear features, such as hedgerows/treelines and watercourses, to commute. Three bat species, namely Common Pipistrelle *Pipistrellus pipistrellus*; Soprano Pipistrelle *Pipistrellus pygmaeus*; and Leisler's Bat *Nyctalus leisleri*, were confirmed to be present using the site during the activity surveys

and were recorded by the static detector surveys. These species were also recorded as present in the area from historical survey data. These three species are the most common bat species in Ireland.

Additionally, one *Myotis* bat species was also recorded using static detectors. The species could not be determined as this is only possible from a live observation. As this *Myotis sp.* was only recorded once on one night, it is likely this species is not roosting nearby or using the site regularly for foraging or commuting purposes and was exploring the edge of its range

Given the moderate to low level of activity by bats at this site is likely to be used by bats to commute and opportunistically forage on the site particularly along the treelines and hedgerows that connect to the wider landscape.

Evaluating importance of commuting and foraging for bats around Katherine Tynan House

The value of the foraging and commuting importance of the site is determined by the commonality of the bat species, the number of bats, the presence of roosts, and the structures and features of the habitats used for foraging and commuting. The evaluation is based on the guidance "Valuing Bats in Ecological Impact Assessment" (Wray et al., 2010).

Table 4-4: Evaluation of parameters based on the guidance "Valuing Bats in Ecological Impact Assessment" (Wray et al., 2010).

Value	Commuting			Foraging		
	Leisler's	**C. Pip**	**S. Pip**	**Leisler's**	**C. Pip**	**S. Pip**
Species	2	2	2	2	2	2
Number of bats	15	10	5	15	10	5
Roosts nearby	3	3	3	3	3	3
Habitat/ Features	3	3	3	2	2	2
Score	23	18	13	22	17	12
Importance	**County**	**Local**		**County**	**Local**	

Reasoning: Leisler's Bat, Soprano Pipistrelle and Common Pipistrelle are the commonest bat species in Ireland. The static detectors recorded a moderate number of calls from Leisler's Bat and slightly less from Common Pipistrelle, and few calls from Soprano Pipistrelle each night. Only one tree within the site was identified as having low bat roost potential and Katherine Tynan House was identified to have negligible bat roost potential. The treelines and hedgerows provide commuting habitat for bats, and in the wider area at Newlands Farm watercourses are present in the form of drainage ditches and Coolfan Stream. Foraging habitat is present in the form of agricultural grasslands and woodlands.

The evaluation of these parameters indicate that the site is of county importance for commuting and foraging for Leisler's Bat, and of local importance for commuting and foraging Common Pipistrelle and Soprano Pipistrelle.

Therefore, using the precautionary principle, the overall importance of the site for bats is considered to be of county importance for foraging and commuting bats.

4.4.3 Breeding Birds

Several amber listed birds have been recorded on NBDC within the four 2km grid squares, some of which use the same type of habitat found on site and could therefore be found within the site.

Hedgerows and treelines within the site offer suitable habitat to nesting birds. Birds recorded within and adjacent to the site during the survey included Blackbird *Turdus merula*, Wood Pigeon *Columba palumbus*, Magpie *Pica pica*, Goldfinch *Carduelis carduelis*, Yellowhammer *Emberiza citrinella*, Great Tit *Parus major*, Blue Tit *Cyanistes caeruleus*, Song Thrush *Turdus philomelos*, Pheasant *Phasianus colchicus*, Wren *Troglodytes troglodytes*, Buzzard *Buteo buteo*, Herring Gull *Larus argentatus*, Hooded

Crow *Corvus cornix*, Robin *Erithacus rubecula*, House Martin *Delichon urbicum*, Chaffinch *Fringilla coelebs*, and Reed Bunting *Emberiza schoeniclus*.

As a precautionary approach, due to the presence of suitable nesting habitat, the site has been valued as being of local (higher) ecological importance for birds.

4.4.4 Amphibians and Reptiles

There was no sign of Common Frog, Smooth Newt *Lissotriton vulgaris* or Common Lizard *Zootoca vivipara* habitation recorded during the ecological walkover survey of the site and its surrounds.

The drainage ditch in the north may hold water during part of the year and could provide suitable habitat for amphibians.

The site is considered to be of local (higher) ecological importance for amphibians and less than local importance for reptiles.

4.5 Invasive Non-native species

The ecological walkover survey recorded two Invasive Non-Native Species (INNS) within the site boundary (Figure 4-3), namely Snowberry *Symphoricarpos albus* and Butterfly-bush. These species can reduce the biodiversity of an area by out-competing native vegetation.

These species are not listed on the third schedule of the EC (Birds and Natural Habitats) Regulations 2011 S.I. No. 477/2011 and as such there is no legal requirement for their management. A list of the High Impact invasive species recently recorded by NBDC in the vicinity of the site is seen in Appendix E.

4.6 Screening of Ecological Features

The screening of ecological features is given in Table 4-5. Those features screened out are not considered further in this assessment. Ecological features that are screened in are assessed for potential impact during construction and operation in the following sections.

Table 4-5: Summary of ecological features and the screening assessment.

Ecological feature	Value	Screening	Reasoning
Glenasmole Valley SAC [001209]	International	Screened out	Lack of connectivity
Wicklow Mountains SAC [002122]	International	Screened out	Lack of connectivity
Wicklow Mountains SPA [004040]	International	Screened out	Lack of connectivity
Rye Water Valley / Carton SAC [001398]	International	Screened out	Lack of connectivity
South Dublin Bay SAC [000210]	International	Screened out	Lack of connectivity
South Dublin Bay and River Tolka Estuary SPA [004024]	International	Screened out	Lack of connectivity
North Dublin Bay SAC [000206]	International	Screened out	Lack of connectivity
North Bull Island SPA [004006]	International	Screened out	Lack of connectivity
Grand Canal pNHA [002104]	National	**Screened in**	
Dodder Valley pNHA [000991]	National	**Screened in**	
Lugmore Glen [001212]	National	Screened out	Lack of connectivity

Ecological feature	Value	Screening	Reasoning
Liffey Valley [000128]	National	Screened out	Lack of connectivity
Glenasmole Valley [001209]	National	Screened out	Lack of connectivity
Slade of Saggart And Crooksling Glen [000211]	National	Screened out	Lack of connectivity
Royal Canal pNHA [002103]	National	Screened out	Lack of connectivity
Rye Water Valley / Carton pNHA [001398]	National	Screened out	Lack of connectivity
Arable crops	Less than local	Screened out	Low value
Stone walls and other stonework	Less than local	Screened out	Low value
Buildings and artificial surfaces	Less than local	Screened out	Low value
Recolonising bare ground	Local (higher) importance	**Screened in**	
Drainage ditches	Local (higher) importance	**Screened in**	
Improved agricultural grassland	Local (higher) importance	**Screened in**	
(Mixed) broadleaved woodland	Local (higher) importance	**Screened in**	
Hedgerows	Local (higher) importance	**Screened in**	
Treelines	Local (higher) importance	**Screened in**	
Mammals - Badger, Hedgehog, Pygmy Shrew; Pine Marten	Local (higher) importance	**Screened in**	
Mammals - Otter	Less than local	Screened out	Low suitability
Bats - roosting	Less than local	Screened out	Low suitability, no bats recorded roosting on site during surveys.
Bats - commuting and foraging	County/Regional	**Screened in**	
Breeding Birds	Local (higher) importance	**Screened in**	
Amphibians	Local (higher) importance	**Screened in**	
Reptiles	Less than local	Screened out	Low suitability
Invasive non-native species	-	**Screened in**	Occur within the proposed site

5 Potential Impacts

The impacts on the valued ecological features are assessed here. The initial assessment considers the potential impact pathways and whether these apply to the ecological features. The impact assessment considers the project and the anticipated effects in the absence of any mitigation.

The following sections described the nature of immediate / short-term impacts, as well as any medium- or long-term impacts, predicted for designated protected sites, habitats and species in the absence of implemented mitigation measures during the maintenance works.

5.1 Do Nothing Scenario

If the proposed works were not to go ahead and the present land management continues as is, the ecological value of the site would remain.

5.2 Construction Phase

5.2.1 Designated Sites

5.2.1.1 Grand Canal pNHA; Dodder Valley pNHA

Impacts could arise from excavation works generating air pollutants and potential pollutants entering the groundwater.

The proposed works are not anticipated to generate a great amount of dust given the small scale works. The main habitats within the pNHAs, woodland, scrub, open water and wildflower meadows, are not sensitive to dust.

There will be an increase in local traffic attending the site during construction, resulting in an increase in NOx emissions, however the works are temporary and will not significantly impact on the ecological features of the pNHAs.

The site is within the same groundwater body as Grand Canal pNHA and Dodder Valley pNHA, the Dublin- IE_EA_G_008 groundwater body. The Aquifer vulnerability (Figure 5-1) at the site is classified by GSI as 'extreme', as the soil depth is less than three metres, which means any excavation could open groundwater pathways for pollution. The installation of the site's soakaway, at depth of 2.6m, will bring construction near the underlying aquifer/groundwater table. This is a locally important aquifer with moderately productive bedrock only in local zones. Moderate connectivity is expected in local zones particularly where fissures are present. As there are limited fissures in the area which are relatively short, the lack of connection between the limited fissures results in localised flow paths significantly reducing transportation of groundwater over large distances (GSI, 2021). Therefore, impacts via groundwater on the pNHAs are not anticipated.

While the works will generate some noise, it will mainly impact the local area and will be temporary in nature. Given the urban setting and close distance to the M50 motorway, the noise generated from the works will not increase the disturbance to species within the pNHAs.

Therefore, in the absence of mitigation, temporary, neutral impacts on Grand Canal pNHA and Dodder Valley pNHA are anticipated.

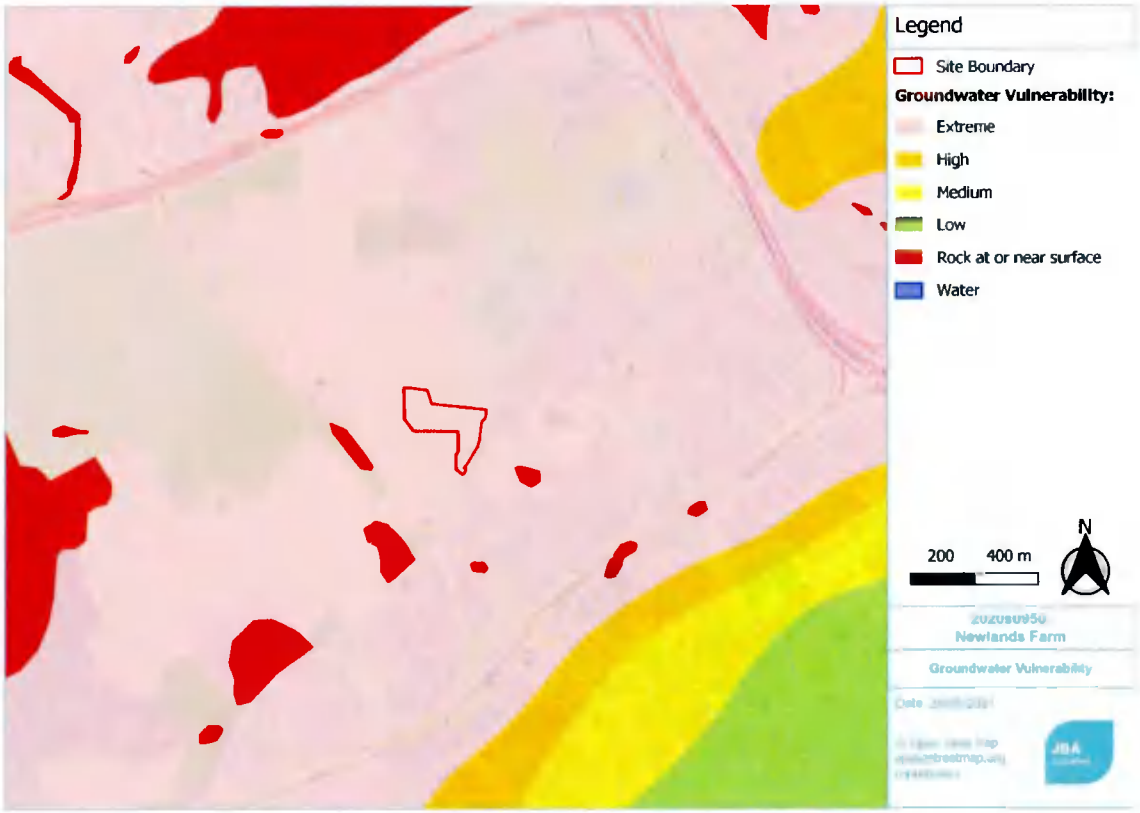


Figure 5-1: Aquifer vulnerability (GSI, 2021).

5.2.2 Habitats

5.2.2.1 Improved agricultural grassland; Recolonising bare ground

Part of the grassland habitat will be replaced with car park and permeable paved yard. The grassland provides suitable foraging habitat for bats and as such, a reduction of this habitat can have an indirect impact on bats using the site. However, the majority of commuting and foraging habitat is being retained and the presence of suitable habitat outside of the site would provide alternative commuting and foraging habitats for bats.

There will be no reduction in recolonising bare ground habitat.

Substantial planting is proposed in the landscape plan, including planting of shrubs such as English Lavender *Lavandula angustifolia 'Hidcote'*, Rosemary *Rosmarinus officinalis*, Heather *Erica* spp. and Balkan Clary 'Ostfriesland' *Salvia nemorosa 'Ostfriesland'*. All of these plants are listed by All Ireland Pollinator Plan as ornamental plants particularly good for pollinators in Ireland and will provide habitat for insects, which are preyed upon by bats and thus provide foraging opportunities for bats.

Therefore, in the absence of mitigation, temporary negligible impacts to these habitats of local importance are anticipated.

5.2.2.2 Drainage ditch

The local drainage ditch to the north of the site may be impacted by accidental spill resulting in pollutants (hydrocarbon leakages from site machinery) or excess of sediment for excavation works entering the water. These inputs would lead to degradation of water quality and affect amphibians potentially using the habitat.

The unmitigated effect to this development during construction would result in a temporary, negligible impact to this habitat of local importance.

5.2.2.3 (Mixed) broadleaved woodland

This habitat occurs at the boundary towards Ballymount Road and is partly outside of the site boundary. No impacts are anticipated to this habitat as no removal of vegetation is proposed in this area.

5.2.2.4 Hedgerows; Treelines

There will be some removal of trees due to the development, mainly early mature Sycamore which are not part of the original planting around Katherine Tynan House. This is not anticipated to impact on the integrity of the habitat as the main structures of the treelines and hedgerows will be retained. Additional planting will replace any removed trees and will result in a net positive tree cover at the site.

However, trees that are being retained could be damaged by machinery working in the area during construction or if works are conducted within the tree root protection zone.

Therefore, in the absence of mitigation measures, short to medium-term minor impacts to this habitat of local importance are anticipated.

5.2.3 Species

5.2.3.1 Mammals - Badger, Hedgehog, Pygmy Shrew; Pine Marten

Potential impact on Badger, Hedgehog, Pygmy Shrew and Pine Marten is through reduction of habitat (grassland and trees), increased noise and human activity during construction and dust deposition leading to changes in structural, foraging and commuting habitat. Although this group of species are generally mobile, constructional impacts attributed to noise, vegetation removal and dust deposition must be considered. Dust can have direct impacts on insect and other invertebrate populations. Impacts on plant and invertebrate communities may result in effects further up the food chain (terrestrial mammals).

Given the temporary scale of the works, generation of dust is not anticipated to impact on this species group as it is not anticipated to impact on the foraging habitat.

Any losses of foraging habitat and noise disturbance could cause stress to this species group. However, most of the vegetation, particularly hedgerows, treelines and mature trees, will be retained and the presence of suitable habitat outside of the site would provide alternative foraging for these mammals.

The Badger sett found on site was inactive at the time of survey. However, Badgers have several smaller outlier setts that are used at different seasons and sometimes disserted for years before being occupied again. The proposed construction works will likely be a deterrent to the local Badger population returning to the inactive sett.

Therefore, in the absence of mitigation, short-term minor impacts to this species group of local importance are anticipated.

5.2.3.2 Bats - commuting and foraging

Impacts to bats during construction will be from any lighting at night required during the bat activity season (March-October) and the removal of any vegetation.

The impact from vegetation removal can be considered negligible given that most vegetation, particularly the hedgerows, treelines and mature trees, will be retained on site during the construction and operation of the project, and the presence of trees and scrub outside of the site would provide alternative commuting and foraging habitats for bats, temporary impacts are not anticipated to be significant.

The impact from night-lighting, if required, may impact upon bats during construction phase.

Therefore, in the absence of mitigation, temporary negligible impacts to this species group of regional importance are anticipated.

5.2.3.3 Breeding Birds

Potential impact on birds during construction is through habitat removal and noise disturbance. Removal of vegetation (scrub, trees) during the breeding season which are used by nesting birds could result in the loss of individuals, including young of the species. Given that birds are mobile species and the majority of available habitat will be retained, long- term impact is not considered on any of the bird species using the site.

The disturbance caused by noise and increased human presence is unlikely to cause stress to this group, given the temporary nature of the works.

Therefore, in the absence of mitigation, temporary negligible impacts to this species group of local importance are anticipated.

5.2.3.4 Amphibians

Impacts on water quality in the local drainage ditch caused by accidental spill of pollutants and sedimentation could also impact on amphibians potentially using the habitat. Direct contact with the pollutants may result in reduced fitness of amphibians and degradation of habitat as a result of reduced water quality could impact on survival of frog spawn and tadpoles.

The unmitigated effect to this development during construction would result in a temporary, negligible impact to this species group of local importance.

5.2.3.5 Invasive non-native species

Invasive species (Snowberry and Butterfly-bush) occur within the site. Snowberry occurs beside Katherine Tynan House and there is a risk of the construction works causing further spread of the species within the site. There is also potential for plant material or seeds to get stuck on machinery and then be transferred to other sites when the machines move between sites. Snowberry spreads through suckering, in the right conditions the root system (rhizome) can grow rapidly and out-compete native plants.

Biosecurity measures should be in place to avoid contamination and further spread of invasive non-native species.

5.3 Operational Phase

5.3.1 Designated Sites

5.3.1.1 Grand Canal pNHA; Dodder Valley pNHA

It is not anticipated that the operational phase will impact on Grand Canal pNHA and Dodder Valley pNHA. The increase in traffic to the site will not significantly increase emissions that could potentially impact the ecological features of the pNHA.

5.3.2 Habitats

5.3.2.1 Improved agricultural grassland; Recolonising bare ground

The grassland provides suitable foraging habitat for bats. The proposed lighting along the road and at the car park may light up previously unlit habitat, making it unsuitable for bats using the site. On a precautionary basis, it is considered that the reduced quality of habitat due to lighting negatively affect the bats using the site.

Therefore, in the absence of mitigation, medium-term minor impacts to this habitat of local importance are anticipated.

There will be no lighting of the recolonising bare ground habitat, therefore no impacts are anticipated.

5.3.2.2 Drainage ditch

During operation, surface water will be attenuated and passed through a petrol interceptor prior to being discharged to the drainage ditch. As such, there will be no discharge of untreated surface water into the drainage ditch.

The unmitigated effect to this development during operation would have a neutral impact on this habitat of local importance.

5.3.2.3 (Mixed) broadleaved woodland

Impacts to this habitat during the operational phase are not anticipated.

5.3.2.4 Hedgerows; Treelines

The hedgerows and treelines provide suitable foraging habitat for bats. The proposed lighting along the road and at the car park may light up previously unlit habitat, making it unsuitable for bats using the

site. On a precautionary basis, it is considered that the reduced quality of habitat due to lighting negatively affect the bats using the site.

Therefore, in the absence of mitigation, medium-term minor impacts to this habitat of local importance are anticipated.

5.3.3 Species

5.3.3.1 Mammals - Badger, Hedgehog, Pygmy Shrew, Pine Marten

Potential impact during operation on Badger, Hedgehog and Pygmy Shrew is through operational noise disturbance and human activity. Any disturbance would be intermittent during diurnal parts of the day and nocturnal noise effects are anticipated to be limited.

Therefore, in the absence of mitigation, negligible impact to this species group is anticipated during the operational phase of the project.

5.3.3.2 Bats - commuting and foraging

Impacts to bats are likely to be through operational disturbance and lighting disturbance. Lighting during the hours of darkness would reduce the quality of foraging, commuting and roosting habitat for bats. It is important to maintain dark spaces and connectivity with the wider landscape, thus the development's lighting design and planting plan must compliment the current commuting routes (vegetated dark corridors).

Noise disturbance associated with the operation of the development would increase significantly but would mainly be associated with daytime hours.

Therefore, in the absence of mitigation, medium-term minor impacts to this species group of regional importance are anticipated.

5.3.3.3 Breeding Birds

Potential impact during operation on breeding birds is through operational noise disturbance and human activity. Any disturbance would be intermittent during diurnal parts of the day and nocturnal noise effects are anticipated to be limited.

Therefore, in the absence of mitigation, negligible impact to this species group is anticipated during the operational phase of the project.

5.3.3.4 Amphibians

During operation, surface water will be attenuated and passed through a petrol interceptor prior to being discharged to the drainage ditch. As such, there will be no discharge of untreated surface water into the drainage ditch and no potential impact on amphibians.

The unmitigated effect to this development during operation would result in a neutral impact on this species group of local importance.

5.3.3.5 Invasive non-native species

It is not anticipated that the operation of the project will cause further spread of invasive non-native species.

5.4 Summary

The following potential impacts have been identified and possible mitigation is discussed in the next chapter:

- Degradation of treeline habitat and disturbance/harm to protected species that may inhabit it (breeding birds) through physical damage during the construction phase.
- Pollution of the drainage ditch which may negatively impact on amphibians potentially using the habitat.
- Disturbance of commuting and foraging terrestrial mammals and bats, as well as potentially accidental fatal entrapment for terrestrial mammals during construction.
- Disturbance during construction should the local Badger population re-occupy the inactive sett.
- Spread of invasive species during construction.
- Lighting causing disturbance to bats and reducing habitat quality during operation.

6 Mitigation

The following mitigation is recommended to ensure that the proposed do not adversely impact on the ecological receptors outlined in Section 5.

6.1 Do nothing scenario

If the proposed works were not to go ahead, it is likely that the current regime of management of the land will continue as currently.

6.2 Construction Phase

6.2.1 Release of pollutants and sediment impacting on local drainage ditch and amphibians

Although it has been identified that there will be no permanent impact through pollution events to the amphibians and their habitat during the work, it is advised that general sediment and pollution control measures are in place to protect these ecological features while the works are being carried out.

6.2.1.1 Sediment Control Measures

Appropriate mitigation measures should be implemented prior and during the construction phase to ensure that the water quality is not adversely affected through pollution incidents and the release of contaminants from the site.

Relevant legislation and best practice guidance that have been considered include, but are not limited to the following:

- C532 Control of water pollution from construction sites. Guidance for consultants and contractors (www.ciria.org);
- C515 Groundwater control – design and practice, 2nd ed. (www.ciria.org);
- CIRIA Guidance C741: *Environmental good practice on site guide* (Charles & Edwards, 2015; CIRIA, 2019 - www.ciria.org);
- Inland Fisheries Ireland 2016 'Guidance on Protection of Fisheries During Construction Works In and Adjacent to Waters';
- Inland Fisheries Ireland (2020) Planning for Watercourses in the Urban Environment. A Guide to the Protection of Watercourses through the use of Buffer Zones, Sustainable Drainage Systems, Instream Rehabilitation, Climate / Flood Risk and Recreational Planning

The above best practice mitigations will alleviate the risk associated with accidental spills and runoff events. In particular silt runoff into the drainage ditch will be prevented by incorporating the following actions:

- A silt fence shall be installed between the site and the drainage ditch prior to any works commencing. The silt fencing should be removed only when bare soil is re-vegetated and sediment movement is no longer a risk.
- The silt fence will be a permeable geotextile barrier installed vertically on support posts and entrenched in the ground.
- The extent of the silt fencing shall take account of the slope of the land and extent of works;
- Run-off from the working site or any areas of exposed soil should be channelled and intercepted for discharge to silt-traps with over-flows directed to land to prevent any flow of surface water to the drainage ditch;
- Silt-traps should be maintained and cleaned regularly during the course of site works;
- All excavations close to the drainage ditch should be carried out in the dry and there will be no working near the ditch during heavy or sustained period of rain;
- All soil stockpiles shall be located >10m away from the drainage ditch and within the extent of the silt fence. All stock piles shall be covered to minimise the risk of rain / wind erosion;

General measures

- No excavation shall take place below the water-table on the site;

- Any stockpiling of topsoil must be considered and planned such that risk of pollution from these activities is minimised. Drainage from the topsoil storage area should not enter the drainage ditch;
- The compound shall be located within the site boundary and will be sited as far from the drainage ditch (>50m) as possible in order to minimise potential impacts. If it is not possible to locate the site compound >50m from the stream, a plastic membrane will be put up with berms around the edge to prevent any contaminants leaking through;
- Drainage collection system for washing area to prevent run-off into surface water system;
- There must be no discharge to, including any suspended solids or other deleterious matter, to the drainage ditch;
- All site runoff will be controlled and if necessary diverted to a sediment tank and the contents will be removed off site by a licenced waste contractor;
- Daily checks will be carried out and records kept on a weekly basis and any items that have been repaired/replaced/rejected noted and recorded. Any items of plant machinery found to be defective should be removed from site immediately or positioned in a place of safety until such time that it can be removed.

6.2.1.2 Pollution Control and Spill Prevention

In the event of a spill the Contractor will ensure that the following procedures are in place:

- Emergency response awareness training for all Project personnel on-site works.
- Appropriate and sufficient spill control materials will be installed at strategic locations within the site. Spills kits for immediate use will be kept in the cab of mobile equipment.
- Oil booms and oil soakage pads should be maintained on-site to enable a rapid and effective response to any accidental spillage or discharge. The correct disposal of these booms and pads will be demonstrated during the tool box talks. Records will be maintained by the environmental manager of the used booms and pads taken off site for disposal.
- Spill kits will be stored in the site compound with easy access for delivery to site in the case of an emergency. A minimum stock of spill kits will be maintained at all times and site vehicles will carry spill kits at all times. Spill kits must include suitable spill control materials to deal with the type of spillage that may occur and where it may occur. Typical contents of an on-site spill kit will include the following as a minimum;
- Absorbent granules;
    - Absorbent mats/cushions;
    - Absorbent booms.
- Spill kits will contain gloves to handle contaminated materials and sealable disposal sacks.
- Track mats, drain covers and geotextile material.
- Any pollutant chemicals, fuels of any kind, concrete additives etc. used on site will be stored in labelled waterproof and secured protective containers to mitigate the risk of pollution of the watercourses.
- To minimise any impact on the underlying subsurface strata from material spillages, all oils, solvents etc, used during construction will be stored in temporary bunded area within the construction compound, however they will not be stored on site overnight.
- Oil and fuel storage tanks shall be stored in designated areas, and these areas will, as a minimum, be bunded to a volume not less than the following;
- 110% of the capacity of the largest tank or drum within the bunded area (plus an allowance of 30 mm for rainwater ingress); or
- 25% of the total volume of substances which could be stored within the bunded area.
- The site compound fuel storage areas and cleaning areas will be rendered impervious and will be constructed to ensure no discharges will cause pollution to surface or ground waters.
- Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area which will be away from any existing surface water drains which could also provide pathways to the underlying geology.
- Mobile plant will refuel over a drip tray with an absorbent mat;

- The contractor will ensure that no hazardous or noxious materials enters a watercourse/drain. Should this situation arise emergency procedures will be activated;
- Potentially contaminated run off from plant and machinery maintenance areas will be managed within the site compound surface water collection system.
- Damaged or leaking containers will be removed from use and replaced immediately.
- During all works the weather forecast will be monitored and a contingency plan developed to prevent damage or pollution during extreme weather. Machinery and equipment will not be left on-site during such events and will be removed beforehand.

6.2.2 Removal of vegetation (treeline, hedgerow)

During removal of vegetation and construction works, trees to be retained will be protected to avoid damage. The Arboricultural Impact Assessment and Tree Protection Strategy report (Murray & Associates Landscape Architecture, 2021) outlines measures for the protection of trees. The following measures will be adhered to:

- A protective fencing will be erected prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place.
- A notice 'Construction Exclusion Zone' shall be placed on tree protection fencing at regular intervals.
- Any damage to protective fencing shall be reported to Site Arborist and is to be repaired within 2 hours of the damage occurring.
- Works within the Root Protection Area are not recommended. Should essential work be necessary installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. Prior consultation with the arborist is required.

6.2.2.1 Mitigation for breeding birds

Removal of vegetation will be conducted outside of the bird nesting season (March to September inclusive). If this is not possible, a breeding bird survey will be undertaken in advance of the works to ensure that there will be no impacts on nesting birds. The survey will be carried out by an appropriately qualified ecologist, i.e. able to identify bird species and experience in undertaking breeding bird surveys. If nests are found, they will be safeguarded, with an appropriate buffer, until the chicks have successfully fledged.

6.2.3 Disturbance/harm to species (mammals, bats)

Although it has been identified that there will be no permanent impact through disturbance to wildlife during the work, it is advised that general avoidance measures be undertaken to protect wildlife while the works are being carried out.

General avoidance measures that should be incorporated by the contractors working on site include:

- Due to the potential presence of Badger; Hedgehog; Pygmy Shrew; and the presence of bats, the use of lighting at night should be avoided. If night working is required, lighting should be cowled and directed away from vegetation bordering the site and retained treelines/hedgerows through the site to maintain a dark corridor. Motion sensors will allow for site security to be maintained, while reducing the impact of lighting upon bats that may be using the site;
- Contractors must ensure that no harm comes to wildlife by maintaining the site efficiently and clearing away materials which are not in use, such as wire or bags in which animals can become entangled; and
- Any pipes should be capped when not in use (especially at night) to prevent animals becoming trapped. Any excavations should be covered overnight to prevent animals from falling and getting trapped. If that is not possible, a strategically placed plank should be placed to allow animals to escape.

6.2.4 Disturbance to Badger

As Badgers may return to a sett that is currently inactive, it will be necessary to conduct a pre-construction survey to confirm that the sett is still unoccupied. The survey should be carried out within a 6 month period prior to starting any construction or site preparation works.

If the sett is still inactive, then works can proceed as planned.

If the survey identifies the sett to be occupied by Badgers, then appropriate mitigation measures need to be incorporated. The details of the mitigation measures should be specified by the results of the survey, but should include:

- A protection zone of 30m around the sett, which will be clearly marked prior to construction works commence.
- Heavy machinery can disturb the tunnel systems if within 30 m of the sett. Therefore, no heavy machinery should be used within 30 m of active Badger setts (unless carried out under licence). Likewise, lighter machinery (generally wheeled vehicles) should not be used within 20 m of a sett entrance, and light work, such as digging by hand or scrub clearance should not take place within 10 m of sett entrances.
- If works are required within the restricted distances outlined above, an application for permission for disturbance shall be made by a suitably qualified ecologist to the Wildlife Licencing unit at National Parks and Wildlife Service.

6.2.5 Biosecurity

Given that Snowberry is present next to Katherine Tynan House there is a risk of further spread of the species within the site when construction works are carried out.

Snowberry should be eradicated prior to works commence. Eradication can be done through spraying with a strong glyphosate-based herbicide, which must be applied when the plant is in full leaf (Tyrie, 2021). Follow up is needed and several applications may be required.

There is also a risk of spread between sites via machine tracks, boots or clothes that have been contaminated. Measures will need to be put in place to ensure that there is no spread of invasive non-native species or diseases. The Check-Clean-Dry approach should be followed, ensuring that all PPE and equipment is cleaned before leaving site. For more information refer to: www.nonnativespecies.org/checkcleandry.

6.3 Operational Phase

6.3.1 Lighting Design (Bats)

The lighting design should follow the guidance provided by Bat Conservation Trust and the Institution of Lighting Professionals – Bats and artificial lighting in the UK (BCT 2018). Specifically, the mitigations outlined below should be adhered to.

Hours of illumination:

Site lighting should be switched off or at lower light output during inactive site hours, this would benefit the bats foraging and/or commuting in the locality. Additionally, lighting should be controlled by occupancy / motion sensors so that it will remain off / low if there is no pedestrian traffic nearby.

Light levels and type:

Site lighting that meets the lowest light levels permitted under health and safety would be preferable for bats in the vicinity. The specification and colour of light treatments, such as single bandwidth lights and no UV light are essential. LED luminaires are ideal and should be used where possible due to their sharp cut-off, lower intensity, and dimming capability. A warm white spectrum (2700K – 3000K) should be used to reduce the blue light component. The LED luminaires could also feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to the Bats.

Column heights of lamp posts:

As Bats are most likely forage in the unlit areas surrounding the site, the introduction of new lighting as a result of the new development, with accompanying light spillage, is anticipated to result in the bats becoming averse to commuting and foraging within the proposed site and potentially the adjacent habitats also. In order to reduce the amount of light spillage where it is not needed, the height of lamp columns should be restricted. A height of 6m or less is necessary to avert lighting impacts.

6.4 Recommended Enhancements

The following measures are recommended to enhance the opportunities for biodiversity within the site. These measures are not mitigation measures required to ensure no negative residual impacts but rather represent significant opportunities for enhancements.

6.4.1 Artificial Bat Roost

In order to enhance the site for roosting bats, 2no. bat boxes may be installed on site during the operation phase. These bat boxes should be south-facing and at least 4m off the ground. If erecting on buildings, erect as close as possible to the eaves of the building, and if possible, on buildings located adjacent or close to a treeline. If erecting on a mature tree, the placement must be free from Ivy with no branches within a 1m radius around the location of the box.

Example of suitable bat boxes include the 1FF Schwegler Bat Box with Built-in Wooden Rear Panel and the 2F Schwegler Bat Box (General Purpose). This will accommodate Leisler's bat, *Pipistrelle* species and *Myotis* species. Figure 6-1 (below) shows the suggested locations of the bat roosts.

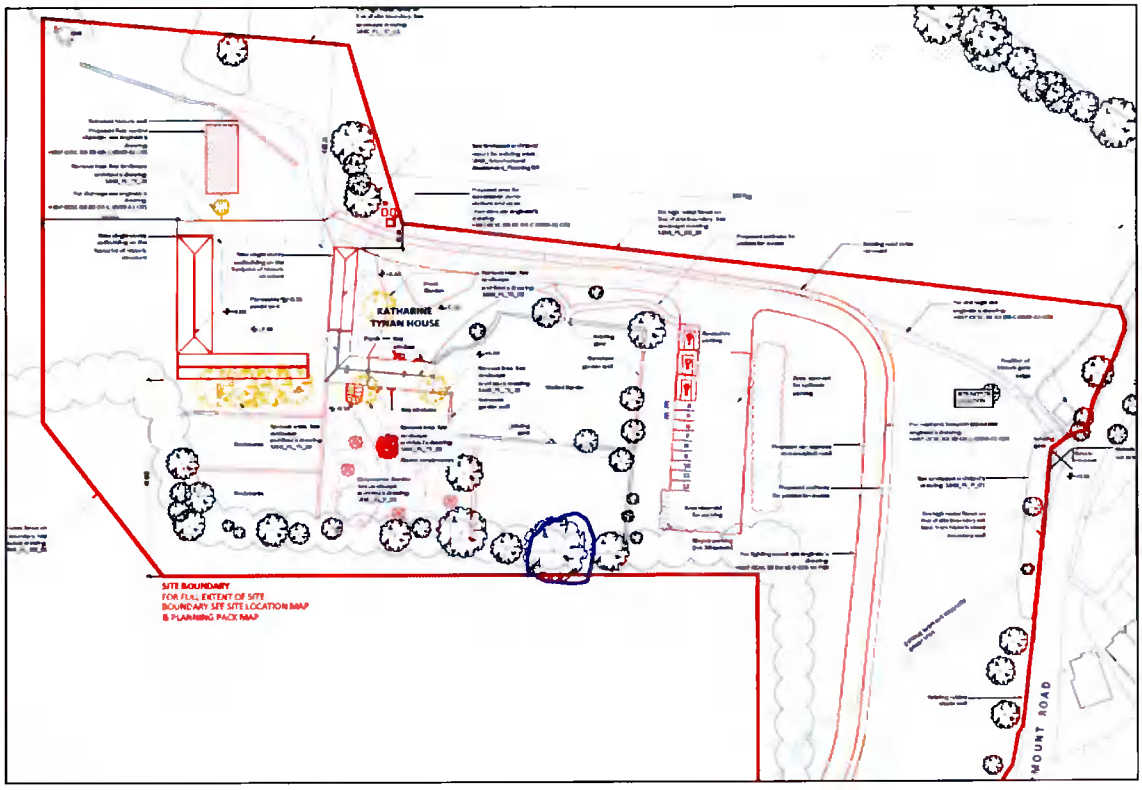


Figure 6-1: Suggested location for artificial roost/ Bat box

6.4.2 All Ireland Pollinator Plan

It is recommended that All-Ireland Pollinator Plan actions be carried out during the operation. A new All-Ireland Pollinator Plan (2021-2025) came out in March 2021 and recommended actions in the guidance document Councils: actions to help pollinators (All-Ireland Pollinator Plan 2015-2020) still stands:

https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-Council-Guide-FINAL.pdf

A summary of the actions in this document includes:

- Protect what you have.
- Protect and enhance the natural habitats that are already available to pollinators.
- Alter mowing regime of grassy areas.
- The most cost-effective way to help pollinators is to reduce mowing and allow grassland species such as Dandelions, Clover, and Birds-foot Trefoil to flower.

- Choosing to plant native and nectar/pollen rich species that provide food sources for pollinators from early spring to autumn.
- Further guidance on this can be found here https://pollinators.ie/wordpress/wp-content/uploads/2018/04/Planting-Code-2018-WEB.pdf.
- Provide nesting habitat. Pollinators early life cycles are dependent on their nesting habitats, not just the food that is provided. Many pollinators nest in hedgerows, earth/sand banks, holes in wood or concrete, or in bee/bug hotels.
- Further guidance can be found here: https://pollinators.ie/wordpress/wp-content/uploads/2018/04/How-to-guide-Nesting-2018-WEB.pdf.
- Reduce or eliminate pesticides.
- Use alternatives to pesticides like glyphosate or eliminate their use altogether.

7 Residual Impact

Residual ecological impacts are those that remain once the development proposals have been implemented. The main aim of ecological mitigation, compensation, and enhancement is to minimise or eliminate residual impacts.

7.1 Do Nothing Scenario

Under the current use of the site there is a neutral effect on the general ecology of the area. If the proposed works were not to go ahead, it is likely that the current regime of management of the land will continue as currently with no residual impacts.

7.2 Construction Phase

The proposed project will result in reduction of habitat (improved agricultural grassland) which provides foraging habitat for bats, and the removal of individual trees. This is not anticipated to have a significant effect on habitat integrity or bats foraging in the area. Removal of vegetation during bird nesting season could cause harm to breeding birds. Working machinery could cause physical damage to roots and stems of trees. It is also likely that the works will cause disturbance to mammals and there is potential for Badgers to have re-occupied the inactive sett within the site and any construction works could cause disturbance or harm to the individuals. There is potential for temporary pollution during construction activities to discharge in the drainage ditch in the north of the site which could degrade the water quality and impact on amphibians potentially using the habitat.

Mitigation measures to be implemented include sediment and pollution controls, protection of retained vegetation and general avoidance measures incorporating good site management and construction practices to minimise harm and disturbance to species. Vegetation will be removed outside of the bird nesting season and if this is not possible, the site should be surveyed for breeding birds by a suitably qualified ecologist and any nests found will be safeguarded until chicks have successfully fledged. A pre-construction Badger survey will be carried out to determine if the existing sett on site is still inactive. The mitigation in place will minimise any significant and/or permanent impact on the environment and residual impacts during the construction phase are not anticipated.

7.3 Operational Phase

The operation of the site will result in an increase of human activity at the site, potentially causing disturbance to species. However, this impact is considered to be negligible. Lighting of the site has the potential to negatively impact on bats foraging and commuting in the area by lighting of retained vegetation and reducing the quality of the habitat for bats.

Mitigation measures for the lighting design will ensure that there is no additional lighting impacting on surrounding natural habitats and minimise the disturbance to bats. The operational phase is not anticipated to have any significant residual impact.

7.4 Summary Table

Table 7-1 (construction phase) and Table 7-2 (operation phase) below present a summary of the EcIA assessment describing the ecological features, the potential impacts of the works on these ecological features, their value according to European environmental law, the severity of the impact and mitigation measures which are to be implemented to avoid these impacts. Residual impacts following the implementation of mitigation measures are also provided.

Table 7-1: Summary table of impact assessment, mitigation measures and residual impact during construction phase.

Ecological Features	Importance of Feature	Potential Impact	Impact without Mitigation	Mitigation	Significance of Effects of Residual Impacts
Construction Impacts					
Designated Sites					
Grand Canal pNHA	National	Reduced habitat quality due to air pollution	Neutral	-	No significant residual impact
Dodder Valley pNHA	National		Neutral	-	No significant residual impact
Habitats					
Improved agricultural grassland; Recolonising bare ground	Local (higher)	Reduction of foraging habitat for bats	Negligible	-	No significant residual impact
Drainage ditch	Local (higher)	Temporary decrease in water quality from sediment released and/or pollution incidents.	Negligible	Follow pollution prevention and silt control measures outlined in Section 6.2.1.	No significant residual impact
(Mixed) broadleaved woodland	Local (higher)	None anticipated	Neutral	-	No significant residual impact
Hedgerows, Treelines,	Local (higher)	Removal of trees Damage to trees during construction	Minor	Follow measures outlined in Section 6.2.1, including protective fencing around retained vegetation and timing of removal of vegetation to avoid impacts on breeding birds.	No significant residual impact
Species					
Mammals - Badger, Hedgehog, Pygmy Shrew, Pine Marten	Local (higher)	Disturbance to commuting and foraging activities in the vicinity of the site Disturbance to	Minor	Follow measures outlined in Section 6.2.3, including limit work to daylight hours, any necessary lighting directed away from vegetation and ensuring pipes are capped and excavations covered during night to avoid mammals becoming entrapped.	No significant residual impact

Ecological Features	Importance of Feature	Potential Impact	Impact without Mitigation	Mitigation	Significance of Effects of Residual Impacts
		Badger if inactive sett is reoccupied		Specific mitigation for Badger shall be adhered to as outlined in Section 6.2.4. This include a pre-construction survey within 6 months of construction start to identify if sett is still disused. If sett is re-occupied by Badger, then specific mitigation measures are required, such as a protection zone around the sett and apply to NPWS for permission to disturb the sett.	
Bats – foraging and commuting	Regional	Disturbance to commuting and foraging activities in the vicinity of the site	Negligible	Follow measures outlined in Section 6.2.3, including limit work to daylight hours, any necessary lighting directed away from vegetation	No significant residual impact
Breeding birds	Local (higher)	Noise and human activity disturbance Harm to individuals if vegetation is removed during nesting season	Negligible	Follow measures outlined in section 6.2.1. Vegetation should be removed outside of the bird nesting season (March to September inclusive). If this is not possible, a breeding bird survey will be undertaken in advance of the works to ensure that there will be no impacts on nesting birds.	No significant residual impact
Amphibians	Local (higher)	Temporary decrease in water quality from sediment released and/or pollution incidents impacting on amphibians.	Negligible	Follow pollution prevention and silt control measures outlined in Section 6.2.1.	No significant residual impact

Table 7-2: Summary table of impact assessment, mitigation measures and residual impact during operation phase.

Ecological Features	Importance of Feature	Potential Impact	Impact without Mitigation	Mitigation	Significance of Effects of Residual Impacts
Operational Impacts					
Designated Sites					
Grand Canal pNHA	National	None anticipated	Neutral	-	No significant residual impact
Dodder Valley pNHA	National		Neutral	-	No significant residual impact
Habitats					
Recolonising bare ground	Local (higher)	None anticipated	Neutral	-	No significant residual impact
Improved agricultural grassland	Local (higher)	Lighting of habitat impacting on foraging and commuting habitat for bats	Minor	Adhere to mitigation measures outlined in Section 6.3.1, these include lighting design to minimise impacts on bats.	No significant residual impact
Drainage ditch	Local (higher)	None anticipated	Neutral	-	No significant residual impact
(Mixed) broadleaved woodland	Local (higher)	None anticipated	Neutral	-	No significant residual impact
Hedgerows, Treelines	Local (higher)	Lighting of habitat impacting on foraging and commuting habitat for bats	Minor	Adhere to mitigation measures outlined in Section 6.3.1, these include lighting design to minimise impacts on bats.	No significant residual impact
Species					
Mammals - Badger, Hedgehog, Pygmy Shrew, Pine Marten	Local (higher)	Disturbance to commuting and foraging activities in the vicinity of the site	Negligible	-	No significant residual impact
Bats – foraging and commuting	Regional	Lighting disturbance to commuting and foraging activities within the site	Minor	Adhere to mitigation measures outlined in Section 6.3.1, these include lighting design to minimise impacts on bats.	No significant residual impact
Breeding birds	Local (higher)	Disturbance to	Negligible	-	No significant

Ecological Features	Importance of Feature	Potential Impact	Impact without Mitigation	Mitigation	Significance of Effects of Residual Impacts
		commuting and foraging activities in the vicinity of the site			residual impact
Amphibians	Local (higher)	None anticipated	Neutral	-	No significant residual impact

8 Cumulative Impacts

Potential sources of cumulative impacts were identified based on the ecology of valued ecological features. Potential sources of cumulative impacts were sought within an area where there is the potential for a significant impact on a site or species. The following plans were identified as potential sources of cumulative impacts:

8.1 Plans

8.1.1 South Dublin County Council Development Plan 2016 - 2022

The South Dublin County Council (SDCC) Development Plan sets out an overall strategy for the proper planning and sustainable development of the County. The objectives include a target of increased population and continuing the consolidation of established urban areas, support and facilitate economic activity, promote the ease of movement by sustainable modes (walking, cycling and public transport). 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.

8.1.2 Greater Dublin Drainage Plan

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 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).

The Greater Dublin Drainage Strategy is not anticipated to contribute to cumulative or in-combination effects.

8.1.3 River Basin Management Plan for Ireland 2018-2021

The 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 RMBP 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.

The River Basin Management Plan for Ireland 2018-2021 is not anticipated to contribute to cumulative or in-combination effects.

Ireland's third River Basin Management Plan 2022-2027 is due to be published in December 2021. 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 catchment, including status and risk categories, significant threats and pressures, details on protected areas and a comparison cycle 2 and cycle 3. The draft Catchment Report for Liffey and Dublin Bay Catchment identifies an overall improvement of 5 waterbodies across the catchment since the cycle 2 assessment (Catchment Science & Management Unit, 2021). The significant pressures of the River Camac are urban runoff and urban wastewater, where the impacts are a combination of nutrient and organic pollution and Ringsend agglomeration. The transitional and coastal waterbodies meet the requirements for the habitats and species of the SACs, including the Dublin Bays SACs. Specific water supporting conditions have not been identified for the dependent bird species in the SPAs and so waterbodies associated with SPAs are not included in the assessment, though for Dublin Bay they overlap with the SACs.

8.1.4 Other Projects

Since November 2018, the projects listed below (Table 8-1), which are not retention applications, home extensions and/or internal alterations, have been granted planning permission in the locality of the proposed site.

Table 8-1: Projects granted planning permission since October 2018 in vicinity of proposed site.

Planning Reference	Address	Application Status	Decision date	Summary of development
SD21A/0012	Buckandhounds, Bedlesshill, Kingswood, Fortunestown, Tallaght, Dublin 24	Grant Permission	23/3/2021	Deepening of part (c. 43ha.) of the existing and permitted quarry (An Bord Pleanala refs. 301177 & QD0026) to a quarry floor level of -10mOD using conventional blasting techniques; use of mobile processing plant; product stockpiles; final restoration scheme and all ancillary works within a planning application area of 49.4ha and within the overall landholding of 241.6ha and will be accompanied by an Environmental Impact Assessment Report (EIAR).

8.2 Summary of Cumulative Impacts

Only one planning application in the vicinity was identified to potentially act in-combination with the proposed project.

Planning application SD21A/0012 involves deepening of the existing and permitted quarry at Buckandhounds, Bedlesshill. The EIAR identified habitat loss and dust deposition as the main impacts on the local ecological features. There will be a permanent loss of the dry meadow and scrub habitat within the site, which cannot be mitigated for, however it is considered that the long-term restoration of the site will provide an opportunity to compensate for the loss of grassland and scrub. Dust generated by the quarry activities is being monitored and dust deposition levels comply with guideline limit value of 350 mg/m2 /day and as currently conditioned. The habitats that have been subject to long-term dust deposition have no perceivable negative effects. With deposition levels not predicted to change, adverse effects are not anticipated.

Therefore, significant cumulative impacts are not expected to occur on the ecological features within the proposed site.

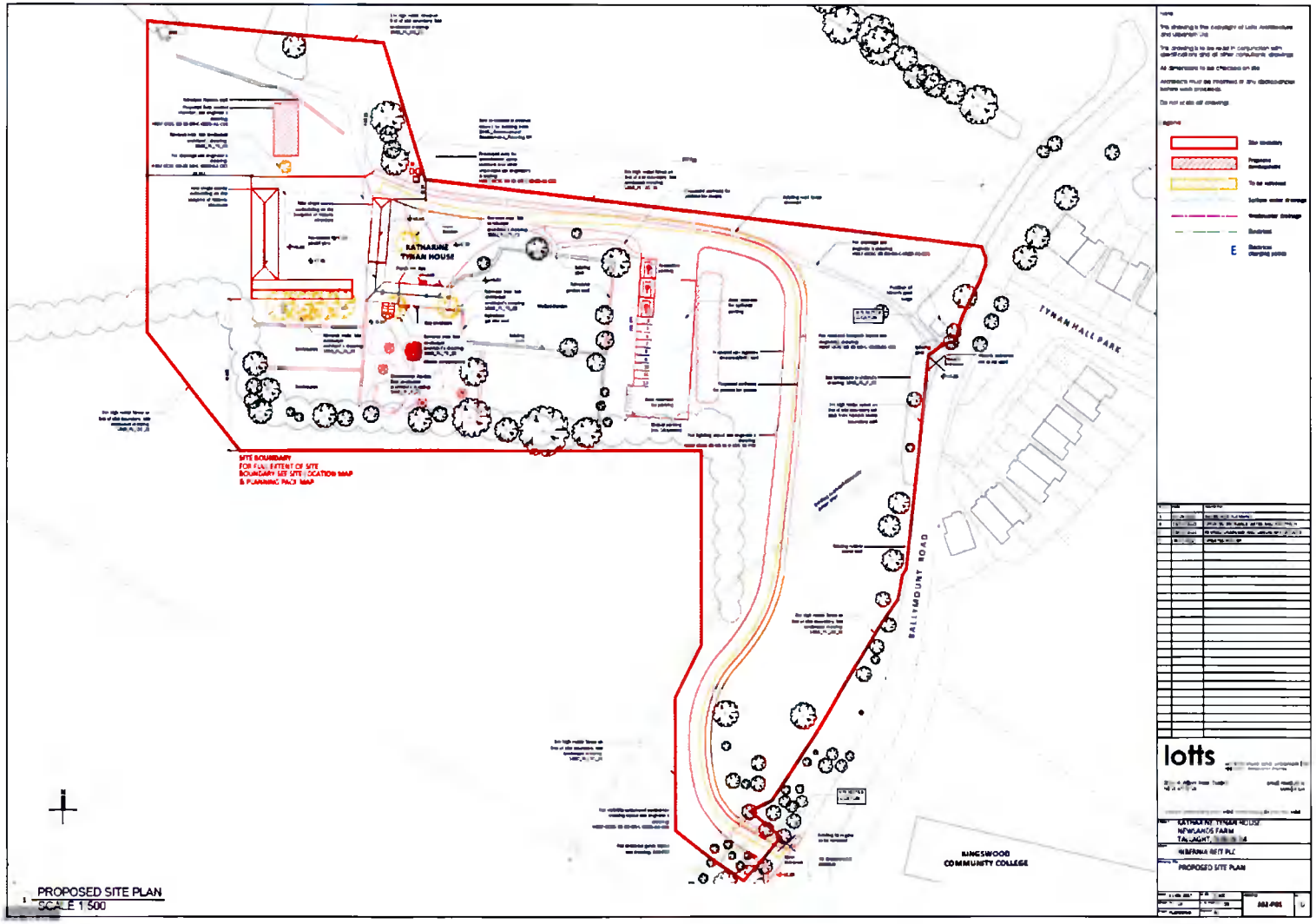
9 Conclusion

The construction of this proposed development has been shown to potentially impact a number of different habitats with local importance (improved agricultural grassland; recolonising bare ground; drainage ditch; mixed broadleaved woodland; treeline; and hedgerow) and faunal groups (Badger; Hedgehog; Pygmy Shrew; Pine Marten; bats; breeding birds; and amphibians) with local and regional ecological importance.

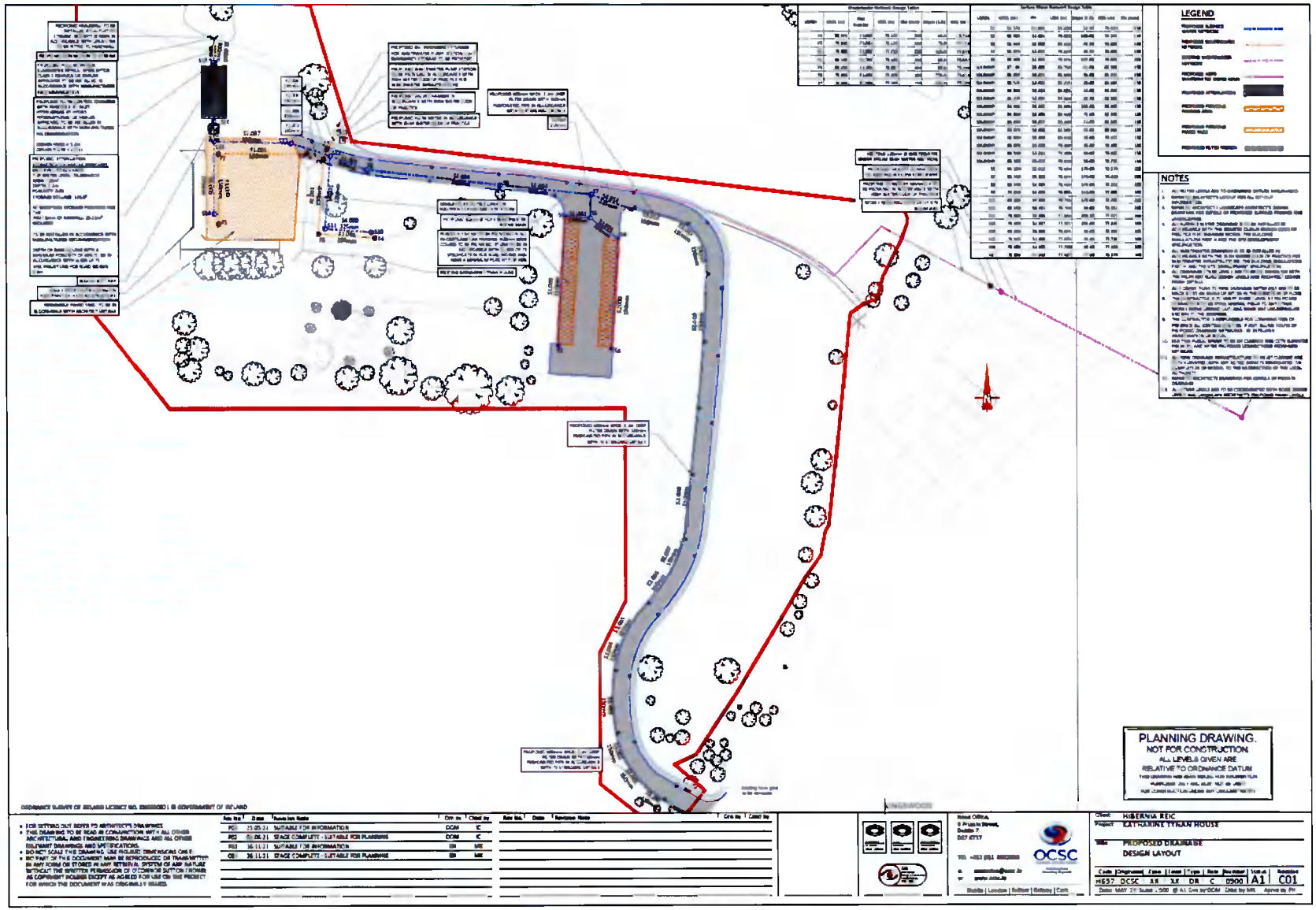
Based upon the information supplied and provided that the development is constructed in accordance with the mitigation measures outlined above, there will be no significant impact in combination with other projects and plans, as result of the development and associated works on the ecology of the area and on any designated conservation sites.

Appendices

A Site Layout Plan



B Drainage Layout



C Relevant Policy and Legislation

The legislation discussed below is intended as a guide only and does not replace formal legal advice.

C.1 Biodiversity Policy Guidance

'Biodiversity: The National Biodiversity Action Plan 2017-2021 (DCHG, 2017) sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity' and has been developed in response to The Earth Summit, held in Rio de Janeiro in 1992 (UN Convention on Biological Diversity) and subsequent EU and International Biodiversity strategies and policies.

As part of the Action Plan process Local Authorities (LA) must produce Biodiversity Action Plans (BAP). BAPs highlight local biodiversity issues and set out a series of objectives and action plans for the conservation of priority species and habitats where they occur in each district or county.

C.2 Designated Sites and Nature Conservation

C.2.1 Statutory Designated Nature Conservation Sites

Sites with statutory designations receive varying degrees of legal protection under Irish statute (i.e. Wildlife Act 1976 and Wildlife (Amendment) Act (2000) and European Directives (i.e. the EC Birds Directive (2009/147/EC) and EC Habitats Directive (92/43/EC). The EU directives were transposed into Irish national law and subsequent amendments were revised and consolidated in the European Communities (Birds and Natural Habitats) Regulations 2011 and Irish Statutory Instrument 477/2011

There are a number of statutory designations used for sites of high nature conservation value in Ireland, which are applied depending upon the importance of the site in a local, regional, national or international context. These include:

- National
- Natural Heritage Area (NHA)
- Wildfowl Sanctuary
- Statutory Nature Reserve
- Refuge for Fauna
- European
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- International
- UNESCO Biosphere Reserve
- Ramsar Convention Site
- National Park (Category II) Sites

C.2.2 Non-Statutory Designations

Non-statutory sites are afforded no statutory legal protection, but are normally recognised by local planning authorities and statutory agencies as being of local nature conservation value

A proposed Natural Heritage Area (pNHA) is an area deemed to be of special interest containing important wildlife habitat and often containing rare or threatened species. They may also be selected on the basis of their geology or geomorphology.

C.2.3 Protected and Notable Species

A number of species are protected under Irish and international legislation. In Ireland, primary protection is provided under the 1976 Wildlife Act and Wildlife (Amendment) Acts (2000 & 2010) and revision 2018. Species of European importance receive additional protection in Ireland under the Birds and Natural habitats Regulations 2011.

The Flora (Protection) Order (2015) makes it illegal to cut, uproot or damage a listed species in any way. It is illegal to alter, damage or interfere in any way with their habitats.

C.2.4 Birds

Almost all resident wild birds are protected under the 1976 Wildlife Act (and amendments) This makes it an offence to:

- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built
- take, destroy or possess the egg of any wild bird.

C.2.5 Badger

Badgers are protected under the 1976 Wildlife Act (and amendments) and it is illegal to intentionally kill, capture, injure or ill-treat any Badger. It is also an offence to obstruct, destroy or damage a Badger sett or disturb Badgers within a sett. Disturbance is defined, for development purposes, as any activity that could damage a sett or be greater than what Badgers commonly tolerate.

C.2.6 Bats

All Irish bat species are European Protected Species (EPS), protected under the Wildlife Act (and amendments) and the Conservation of Habitat and Species Regulations 2017 (as amended). This makes it an offence to:

- deliberately capture, injure or kill a bat
- intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
- intentionally or recklessly obstruct access to a bat roost.

C.2.7 Otter

The European Otter is an EPS protected under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence to:

- deliberately capture, injure or kill an Otter
- deliberately disturb an Otter such as to affect local populations or breeding success
- damage or destroy an Otter holt, possess or transport an Otter or any part of an Otter
- sell or exchange an Otter.
- Otters also receive protection under the Wildlife Act (and amendments), this makes it an offence to:
- intentionally or recklessly disturb any Otter whilst within a holt
- intentionally or recklessly obstruct access to a holt.

C.2.8 Reptiles and Amphibians

Common Frog Rana temporaria, Natterjack Toad, *Bufo calamita*, Smooth Newt *Triturus vulgaris* and Common Lizard *Zootoca vivipara* are all protected under the Wildlife Act 1976 (and amendments).

C.2.9 Invasive Non-native Species

Certain invasive non-native animals and plants are listed under the Third Schedule of S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011. This makes it an offence to release, plant them in the wild or cause them to disperse, spread or otherwise cause them to grow. If these species occur on a site proposed for development or other work which may disturb the ground, control of these species is likely to be required.

European Council's Regulation on the prevention and management of the introduction and spread of invasive alien species [1143/2014] sets out to prevent, minimise and mitigate the adverse impacts of the introduction and spread, both intentional and unintentional, of invasive alien species on biodiversity and the related ecosystem services as well as on human health and the economy

D Bat Report

Refurbishment of Katherine Tynan House, Newlands Farm

Bat Survey Report

02 December 2021

Project number: 2020s0950

Hibernia REIT Plc
1 WML Windmill Lane
DUBLIN
Co Dublin
D02 F206

JBA Project Manager

Bernadette O'Connell
Block 660, Unit 8
Greenogue Business Plaza
Greenogue Business Park
Rathcoole
DUBLIN

Revision History

Revision Ref / Date Issued	Amendments	Issued to
S3-P01 / 27/07/2021	Draft Report	Hibernia REIT Plc
A3-C01 / 29/07/2021	Final Report	Hibernia REIT Plc
A3-C02 / 02/12/2021	Amended project description and site layout	Hibernia REIT Plc

Contract

This report describes work commissioned by David Courage, on behalf of Hibernia REIT Plc, by a letter dated 5th May 2021. Malin Lundberg, Mark Desmond, Christos Papachristou and William Mulville of JBA Consulting carried out this work.

Prepared by ..... Malin Lundberg BSc, MSc
Ecologist

Colm O'Leary BSc (Hons)

Assistant Ecologist

Reviewed by ..... Hannah Mulcahy BSc MSc
Ecologist

Purpose

This document has been prepared as a Final Report for Hibernia REIT Plc. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

JBA Consulting has no liability regarding the use of this report except to Hibernia REIT Plc.

Copyright

Carbon Footprint

A printed copy of the main text in this document will result in a carbon footprint of 91g if 100% post-consumer recycled paper is used and 115g if primary-source paper is used. These figures assume the report is printed in black and white on A4 paper and in duplex.

JBA is aiming to reduce its per capita carbon emissions.

Contents

List of Figures

List of Tables

Abbreviations

BCI	Bat Conservation Ireland
BCT	Bat Conservation Trust
NBDC	National Biodiversity Data Centre
NPWS	National Parks and Wildlife Services
NRA	National Roads Authority

1 Introduction

1.1 Background

JBA Consulting was commissioned by Hibernia REIT Plc to undertake bat emergence/re-entry surveys and activity surveys (transect and static) at Katharine Tynan House, Newlands Farm, Kingswood, Co. Dublin. The development seeks to refurbish the house and gardens as a community centre.

This report describes the findings of the bat surveys undertaken in 2021, and an impact assessment on bats from the proposed development is carried out, and appropriate mitigation measures are proposed.

1.2 Legislative Context

Bat surveys are required at this site as all bat species are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) in Ireland. Under international legislation, bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish Government has ratified both these conventions. Also, the EC Directive on The Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All bat species are protected under Annex IV of the EU Habitats Directive, while the Lesser Horseshoe Bat *Rhinolophus hipposideros* is listed under Annex II. Member states are required to designate Special Areas of Conservation for all species listed under Annex II in order to protect them.

1.3 Site Location

The site is located just north-west of Ballymount Road and east of Belgard Road and includes the derelict building Katherine Tynan House and surrounding grassland and treelines (Figure 1-1). The site is surrounded by agricultural fields to the south, west and north and by residential area to the west. Coolfan Stream is approximately 450m north of the site and runs in a north-easterly direction.

Figure 1-1: Site location

1.4 Proposed Project

Katharine Tynan House (Figure 1-2), or 'Whitehall', Ballymount Road, Kingswood is listed as a protected structure in the South Dublin County Council (SDCC) Records of Protected Structures (RPS, ref. 197; SDCC, 2021). The Gate Lodge is also listed as a protected structure. 'White Hall', and its gate lodge at the entrance on Ballymount Road, are recorded in the NIAH survey (ref. 11210002; NIAH 2021). The structure has been unused for several decades, it is derelict and the outbuildings to the west have been demolished. Some of the garden walls and historic tree planting remain.

The development seeks to refurbish the house and gardens as a community use building. Uses will include cultural and community meetings, an education venue for local residents and schools, exhibitions, gardening/horticultural activities and community celebrations. The refurbishment will follow best conservation practice. Based on the site plan (Appendix A) the proposed site has an area of approximately 2.9 Ha.

To date a Heritage Assessment Report and a Condition Survey have been carried out, in liaison with the conservation officer. A successful application has been made to the Built Heritage Investment Scheme (BHIS) to repair the damaged slate roof to the two-storey part of the house.

It is intended to build a single-storey, 430 sq. m (approx.) structure on the footprint of the former outbuildings to the west of the existing building. This outbuilding will be open to the yard on three sides to offer cover for activities such as a farmer's market and an outdoor seating area. It is also proposed that a 110 sq. m outbuilding extension will be added to the existing building, bringing the total floor area of 330 sq. m (approx.). This is in line with the building's former footprint. These newly constructed structures will augment the range of community activities that the development will offer. These structures are to be modest and in the character of vernacular outbuildings, and will house some additional functions such as toilets, storage, and catering facilities.

The development proposal seeks to use the existing agricultural entrance at Ballymount Road for vehicular traffic, this entrance also provides for cyclists and pedestrian access. Provision for 12 no. car parking spaces east of the historic walled garden which include 3 no. accessible parking spaces, 2 no.

electrical points and provision for spill-over car parking and bus parking in the same location. Bicycle parking accommodating 16 no. bicycles will be located adjacent to the proposed car park. A tree survey for the site around the house and along the road has been carried out. Historic trees of quality will be retained, although some younger trees inhibiting construction will be removed. Along the road there are a number of Beech trees south of and beyond the safe viewing line of the entrance. It is proposed to remove self-seeded trees and hedges near the entrance to provide safe viewing lines at the entrance.

Figure 1-2: Katharine Tynan House (south facade)

2 Methodology

This chapter provides details of the survey methodology used, the relevant guidelines followed, any relevant existing data, and conclusions were determined based on the above and on empirical evidence gained in the field bat surveys.

2.1 Desktop Study

Data on previous records of bats within the 2km and 10km grid of this area have been collected from a range of sources, including:

- National Parks and Wildlife Service (NPWS) website (NPWS, 2021).
- National Biodiversity Data Centre (NBDC) Biodiversity Maps (NBDC, 2021).

This data provides background information on previous bat recordings in the vicinity of Newlands Farm and the general density and population trends of these bats.

2.2 Bat Survey Methodology

The survey methods were based on Collins (2016) and the following documents were referenced in support of the study:

- Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland (Kelleher and Marnell, 2006);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust (Collins, 2016);
- A conservation plan for Irish vesper bats, Irish Wildlife Manual No. 20. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland (McAney, 2006);
- The status of EU protected habitats and species in Ireland: Conservation status in Ireland of habitats and species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government (NPWS, 2019);
- Bats and Appropriate Assessment Guidelines. Bat Conservation Ireland (Bat Conservation Ireland, 2012); and
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes. National Roads Authority. (NRA n.d).

2.2.1 Bat Roost Potential Survey

A bat roost potential survey was undertaken by JBA Consulting on 10th March 2021 and included a visual inspection of the building and trees present within the site. A detailed internal and external inspection was carried out of Katherine Tynan house.

Structures and trees on the site were categorised as having either 'negligible', 'low', 'moderate' or 'high' roosting potential and this was determined by applying the definitions given within the Bat Conservation Trust (BCT) Guidelines (see Table 2-1). Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains, scratch marks and dead/alive bats.

The results of the bat roost potential survey are provided in the Bat Roost Assessment report (JBA Consulting, 2021) which is in Appendix B. A summary of the results are provided in Section 3 of this report.

Table 2-1: Potential suitability assessment for bats (Collins, 2016).

Suitability	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats

Suitability	Roosting habitats	Commuting and foraging habitats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.2.2 Emergence/re-entry Survey

Bat emergence and re-entry surveys of Katherine Tynan were carried out during the active bat season 2021 to identify if the building is used as a bat roost. One emergence (dusk) survey was conducted on the 19th May 2021 and one re-entry (dawn) survey was conducted on the 10th June 2021. The emergence viewpoints targeted the potential exit and entrance locations for bats on the building. The survey carried out at dusk started 15 minutes before sunset and ended 2 hours after sunset. The survey carried out at dawn started 2 hours before dawn and ended 15 minutes after dawn, as per survey guidelines (Collins, 2016).

2.2.3 Transect Activity survey

The bat activity transect surveys were conducted at the site on the 19th May, 10th June and 13th July 2021. The first two occasions were conducted in combination with the emergence/re-entry surveys and the last survey started at sunset and ended 2 hours after sunset. Heterodyne bat detectors were used to identify bats. Recordings and visual observations were noted throughout the survey to identify usage of the site. Weather conditions, temperature, the location and the nature of the survey were recorded on a Bat Survey Recording Form.

2.2.4 Static bat detector survey

At each survey occasion, a static bat detector was installed and left for a minimum of five nights to record bat activity. Data collected by the static bat detectors was analysed by Malin Lundberg using AnalookW software, with all results quality checked by Colm O'Leary for consistency.

2.3 Objectives of the report and surveys

The objectives of the surveys were to identify if the building is used as roost by bats and to identify any commuting routes and feeding/foraging areas within the proposed site. This information is required to carry out an impact assessment of the proposed development relative to bats that may be using the site, and to inform the design of appropriate mitigation measures that may be needed as a result of the proposed development.

2.4 Constraints and Limitations

The conclusion of this report necessarily relies on some assumptions and it is inevitably subject to some limitations. Most of these factors would not affect the conclusion but the following points are recorded and taken into consideration during the assessment to ensure the basis of the assessment is clear:

- The results of this bat activity assessment can be applied with confidence for the months of May, June and July only, as bat activity will change along with the change of seasons, i.e., during the summer months bats are using their maternity roosting sites and commuting/foraging areas may differ as opposed to later in the season;
- Weather conditions may affect bat activity, but weather conditions during the surveys were within the optimal window;
- Bat detectors can only provide an index of activity rather than absolute numbers of bats;
- Bat detectors may not pick up all bats using the area as bat species may be using the site but may not always use echolocation when passing the static bat detector;
- Visibility at night may not allow for completely accurate counting of numbers of bats present;
- Subjectivity of individual surveyors can limit consistency, repeatability and quantitative analysis;
- *Myotis* bat species may not be able to be identified to species level due to the variability of frequencies and echolocation calls used by bats of this genus.

3 Results

3.1 Desktop Study

The historical records from the NBDC website (2021) identified four bat species recorded within 2km radius and an additional bat species within a 10km radius around the proposed site within the past 10 years include:

- Leisler's Bat *Nyctalus leisleri* (2km),
- Common Pipistrelle *Pipistrellus pipistrellus* (2km),
- Soprano Pipistrelle *Pipistrellus pygmaeus* (2km),
- Brown Long-eared Bat *Plecotus auratus* (2km)
- Daubenton's Bat *Myotis daubentonii* (10km).

Below are descriptions of the bat species which are likely to be in the local area.

3.1.1 Leisler's Bat

The largest of the Irish bats, Leisler's Bat has distinctive level flight at greater heights than the other Irish species, from which it dives down after dung flies and beetles, with its echolocation frequency calls operating primarily within 20-30kHz. It can be seen soon after sunset flying over open spaces such as parks and fields, as well as woodlands and river valleys. Leisler's Bat is rare in Britain and the rest of Europe, but it is relatively common in Ireland. For this reason, the Irish population of Leisler's Bat is considered to be of International Importance. The population is monitored by the Car-based Bat Monitoring Scheme and its annual trend has shown significant increases since 2003 (IUCN, 2021; BCI, 2021).

This species was also recorded as being present on-site during activity surveys.

3.1.2 Common Pipistrelle

The smallest of Ireland's bat species, the Common Pipistrelle forages in a variety of habitats including open woodland and woodland edges, shrubland, farmland, rural gardens and urban areas. It has a rapid, twisting flight as they pursue their small prey items of midges, mosquitoes and small moths. Their echolocation frequency calls typically fall within the 40-50kHz range. They are most likely to be seen flying around soon after dusk in both urban and rural areas. The population is monitored via the Car-based Bat Monitoring Scheme, which suggests the Common Pipistrelle has seen a notable population increase since 2003 (IUCN, 2021; BCI, 2021).

This species was also recorded as being present on-site during activity surveys.

3.1.3 Soprano Pipistrelle

Equal in size to the Common Pipistrelle, the Soprano Pipistrelle typically forages around open woodland and woodland edges, shrubland, farmland, rural gardens, urban areas and wetlands, and is more closely associated with water than the Common Pipistrelle. It's diet and foraging technique is similar to that of the Common Pipistrelle, but with a preference for small Diptera species (especially aquatic midges) and a higher frequency echolocation call, which generally ranges from 50-60kHz. The Soprano Pipistrelle populations is monitored through the Car-based Bat Monitoring Scheme. The data recorded from the scheme suggests that the populations has increased significantly since 2003 (IUCN, 2021; BCI, 2021).

This species was also recorded as being present on-site during activity surveys.

3.1.4 Brown Long-eared Bat

The notable ears of this bat species are its most distinctive feature as they are almost as long as its body. The Brown Long-eared Bat prefers habitats that are sheltered, fairly open deciduous and coniferous woodland and parkland or well-wooded gardens. Brown Long–eared Bats use a foraging method known as foliage gleaning which means they pick up their prey directly from the leaves of trees and shrubs and in some cases off the ground. Their prey includes spiders, caterpillars, beetles, moths and earwigs which they locate with their sensitive ears and by sight. Another notable feature about this species is that they emit their quiet echolocation sounds through their nose at frequencies ranging from

25–50kHz. A scheme for monitoring this species at its roosts was developed in 2007 (the Brown Long-eared Bat Roost Monitoring Scheme); and thus far the population has been considered stable (IUCN, 2021; BCI, 2021).

3.1.5 Daubenton's Bat

Often referred to as the 'water bat', Daubenton's Bat is easily recognised in flight by its low, level flight a few centimetres above the surface of lakes, slow-moving rivers and canals. The bat skims above the surface of the water in search of caddisflies, mayflies and midges, and may even scoop prey from the water surface using its large feet or scooping them up using its tail membrane. Daubenton's Bat can be detected between the frequencies of 35–70kHz. The Daubenton's Bat annual trend is monitored using a volunteer-based programme – the All Ireland Daubenton's Bat Waterways Survey. This scheme has been ongoing since 2006 and the Daubenton's bat trend has been reasonably stable since this time (IUCN, 2021; BCI, 2021).

3.2 Bat Roost Potential Survey - Summary

A summary of the results from the bat roost potential survey is provided here and the full report can be found in Appendix B.

The bat roost potential survey identified Katherine Tynan House to have Moderate bat roost potential due to the presence of suitable features, both externally (Table 3-1) and internally (Table 3-2).

Table 3-1 External potential roost features of Katharine Tynan House

Structure	Roosting feature	Facing direction	Potential	Notes
Chimney - wall fallen on outside	Cracks	North	Moderate	Butterfly wings (potential feeding remains) Dry with no water entering
Corner of wall covered in Ivy	Cracks	North	Moderate	Crevices going into wall, covered by Ivy
Corner between higher and lower part of building	Large opening	Northeast	Moderate	Access via door
Wall surface coming off	Cracks	South	Moderate	Space in between outer layer and wall

Table 3-2 Internal potential roost features Katharine Tynan House

Structure	Roosting feature	Facing direction	Potential	Notes
Chimneys	Cracks	N/A	Moderate	Crevices in closed chimneys providing good cover. No rainwater entering.
Attic space	Potential void	N/A	Moderate	Access from outside via door entrance and missing roof tiles.

The survey also identified an Ash *Fraxinus excelsior* to have Low bat roost potential. The Ash stands at the end of a stone wall by the entrance to the field east of Katherine Tynan House and is alive and ~20m in height. The tree is in good condition, with no broken limbs. The tree stem is covered in Ivy and no holes were recorded. No evidence of bat activity was recorded.

3.3 Bat Activity Surveys

The surveys were conducted between May - July 2021 during dry evenings/dawns with temperatures above 10°C at sunset, which is the appropriate time and weather conditions for bat surveys (Collins, 2016). Figure 3-1 shows the viewpoints for the emergence/re-entry surveys.

Figure 3-1: Locations of surveyors during the emergence and re-entry surveys

3.3.1 Emergence/re-entry Survey

During the emergence and the re-entry surveys, no bats were recorded to emerge or enter the building. However, bats were recorded commuting and foraging in the area around Katherine Tynan House. A summary of the results from the surveys is provided in Table 3-3.

Table 3-3: Results from bat emergence and re-entry surveys carried out during the summer season 2021.

Date	Species	No. of records	Observation
19-05-2021	Leisler's Bat	5	Foraging/commuting east of the building Foraging in grassland east of the building
	Soprano Pipistrelle	12	Foraging in grassland east of the building and north of the building
	Common Pipistrelle	11	Commuting along west side of building and along treeline east of building
10-06-2021	Leisler's Bat	5	Commuting/foraging north of building
	Soprano Pipistrelle	1	Commuting

	Common Pipistrelle	0	None recorded

3.3.2 Transect Survey

Bats were recorded commuting and foraging within and around the site. Overall, transect surveys recorded foraging and commuting activity along the linear features within the site such as hedgerows and treelines. Figure 3-2 shows the transect route used during surveys.

Figure 3-2: Transect route used during activity surveys

Table 3-4 below displays the bat observations recorded by surveyors during the transect bat activity survey.

Table 3-4: Transect bat recordings from surveys carried out during the summer season 2021.

Date	Species	No. of records	Observation
19-05-2021	Leisler's Bat	1	Did not observe
10-06-2021	Leisler's Bat	2	Commuting along treeline at the eastern boundary. Foraging in grassland east of building.
	Soprano Pipistrelle	2	Foraging/commuting across arable field and grassland in the east
	Common	5	Commuting along hedgerow west of

	Pipistrelle		building and along internal road to the east. Foraging/commuting across arable field and grassland in the east.
13-07-2021	Leisler's Bat	22	Foraging around the south of the site and along the hedgerows along the driveway of the site.
	Soprano Pipistrelle	3	Flying over hedgerow
	Common Pipistrelle	9	Foraging along hedge and garden along eastern side of building.

3.3.3 Static Bat Detector Survey

The static bat detectors put up on the site recorded bats passing east of the building (Table 3-5), south of the building (Table 3-6) and east of the building (Table 3-7). Figure 3-3 illustrates the locations of the static detectors.

Figure 3-3: Static detector locations

Table 3-5: Static detector recordings from east of the building from the 19th May to 23rd May.

Date	Species			Total
	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	
19/05/2021	1	6	2	9
20/05/2021	59	6	36	101

21/05/2021	3	1	51	55
22/05/2021	13	1	9	23
23/05/2021	6	1	0	7
Total	82	15	98	195

Table 3-5 (above) shows bat detector data recorded from east of the building from the 19th May to 23rd May. Three species of bat was recorded during this period, namely Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat. Leisler's Bat was the most common species recorded, whilst Soprano Pipistrelle was only recorded 15 times.

Table 3-6: Static detector recordings from south of the building from the 9th June to 14th June..

Date	Species			Total
	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	
09/06/2021	10	0	44	54
10/06/2021	14	1	61	76
11/06/2021	8	2	31	41
12/06/2021	0	0	8	8
13/06/2021	1	0	47	48
14/06/2021	5	0	84	89
Total	38	3	275	316

Table 3-6 (above) shows static bat detector data from south of the building from the 9th June to 14th June. Three species of bat was recorded during this period, namely Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat. Leisler's Bat was the most common species recorded, whilst Soprano Pipistrelle was only recorded 3 times.

Table 3-7: Static detector recordings from east of the building from 13th July to 19th July.

Date	Species				Total
	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	Myotis	
13/07/2021	4	1	4	0	9
14/07/2021	5	13	26	0	44
15/07/2021	7	10	32	0	49
16/07/2021	6	2	8	0	16
17/07/2021	9	3	21	0	33
18/07/2021	4	5	21	1	31
19/07/2021	2	2	12	0	16
Total	37	36	124	1	198

Table 3-7 (above) shows static bat detector data from south of the building from east of the building from 13th July to 19th July. Four species of bat was recorded during this period, namely Common Pipistrelle, Soprano Pipistrelle, *Myotis* sp. and Leisler's Bat. Leisler's Bat was the most common species recorded, whilst Soprano Pipistrelle and *Myotis* sp. was only recorded a number of times.

Table 3-5, Table 3-6 and Table 3-7 show that the site is used very frequently by Leisler's Bat, whilst other species use the site only occasionally.

3.4 Evaluation of results

3.4.1 Species present

Three bat species (Leisler's Bat, Common Pipistrelle and Soprano Pipistrelle) were confirmed to be present using the site during the activity surveys and were recorded in all three rounds of the static detector surveys. These species were also recorded as present in the area from historical survey data. These three species are the most common bat species in Ireland.

Additionally, one *Myotis* bat species was also recorded using static detectors. The species could not be determined as this is only possible from a live observation. As this *Myotis sp.* was only recorded once on one night, it is likely this species is not roosting nearby or using the site regularly for foraging or commuting purposes and was exploring the edge of its range.

3.4.2 Use of site by bats species

No bats were observed entering or exiting any of the buildings or any of the trees on site during the emergence/re-entry survey, and therefore it is unlikely this site is used by roosting bats. Therefore, it is of negligible importance of roosting bats.

The static bat detector data indicates that Leisler's Bat is using the site more regularly than Soprano or Common pipistrelle, and this result is complimented by the transect survey data. Note that static bat detector data does not indicate the exact number of bats using the site. However, the numbers of bat passes recorded (moderate to low number) and the general lack of activity observed during the transect survey indicates that this is not an important commuting or foraging site for bats.

Given the moderate to low level of activity by bats at this site is likely to be used by bats to commute and opportunistically forage on the site particularly along the treelines and hedgerows that connect to the wider landscape.

4 Impact assessment

This section outlines the potential impacts of the proposed development on bats. It has been determined from the round of various bat surveys conducted through the bat activity season in 2021, that the bat species present on-site are likely using the site for commuting and opportunistic foraging only.

As discussed in the results section, it is unlikely the site is being used by roosting bats. The proposed development is not anticipated to have an adverse impact on population numbers of the bat species in the local area, as there will be no reduction in potential roosting locations from the proposed development.

The site was determined to have a low foraging suitability and low-moderate commuting habitat suitability for bats. However, potential impacts on individuals using the site could be posed by external lighting and removal of vegetation during construction and operation. The potential resulting impacts are described in the sections below.

4.1 Construction Phase Impacts

Impacts to bats during construction will be from any lighting at night required during the bat activity season (March-October) and the removal of any vegetation.

The impact from vegetation removal can be considered negligible given that most vegetation, particularly the hedgerows, treelines and mature trees, will be retained on site during the construction and operation of the project, and the presence of trees and scrub outside of the site would provide alternative commuting and foraging habitats for bats, temporary impacts are not anticipated to be significant.

The impact from night-lighting, if required, may impact upon bats during construction phase.

4.2 Operational Phase Impacts

4.2.1 External Lighting Design: potential impacts on bat foraging activity

Impacts to bats are likely to be through operational disturbance and lighting disturbance. Lighting during the hours of darkness would reduce the quality of foraging, commuting and roosting habitat for bats. It is important to maintain dark spaces and connectivity with the wider landscape, thus the development's lighting design and planting plan must compliment the current commuting routes (vegetated dark corridors).

Noise disturbance associated with the operation of the development would increase significantly but would mainly be associated with daytime hours.

5 Recommended Mitigation Measures

Mitigation measures are proposed below to avoid or minimise impacts to bat species using the site.

5.1 Construction Phase Mitigation

5.1.1 Lighting

In order to minimise disturbance during the construction phase of the project, night working should be avoided. Lights should be turned off or minimised on-site. If night working is required, lighting should be cowled and directed away from vegetation bordering the site and retained hedgerows through the site to maintain a dark corridor. Motion sensors will allow for site security to be maintained, while reducing the impact of lighting upon bats that may be using the site.

5.2 Operation Phase Mitigation

The main recommendations outline below should be carried out to ensure that bat foraging and commuting activities in the area continues unhindered are listed below:

5.2.1 Lighting Design

The lighting design should follow the guidance provided by Bat Conservation Trust and the Institution of Lighting Professionals – Bats and artificial lighting in the UK (BCT 2018). Specifically, the mitigations outlined below should be adhered to.

Hours of illumination:

Site lighting should be switched off or at lower light output during inactive site hours, this would benefit the bats foraging and/or commuting in the locality. Additionally, lighting should be controlled by occupancy / motion sensors so that it will remain off / low if there is no pedestrian traffic nearby.

Light levels and type:

Site lighting that meets the lowest light levels permitted under health and safety would be preferable for bats in the vicinity. The specification and colour of light treatments, such as single bandwidth lights and no UV light are essential. LED luminaires are ideal and should be used where possible due to their sharp cut-off, lower intensity, and dimming capability. A warm white spectrum (2700K – 3000K) should be used to reduce the blue light component. The LED luminaires could also feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to the Bats.

Column heights of lamp posts:

As Bats most likely forage in the unlit areas surrounding the site, the introduction of new lighting as a result of the new development, with accompanying light spillage, is anticipated to result in the bats becoming averse to commuting and foraging within the proposed site and potentially the adjacent habitats also. In order to reduce the amount of light spillage where it is not needed, the height of lamp columns should be restricted. A height of 6m or less is necessary to avert lighting impacts.

5.3 Mitigation by Design

Existing treelines and hedgerows will be retained throughout the site. This will allow for the continued use of the site by foraging and commuting bats. Additional planting of native broadleaved trees is proposed, this will lead to a net gain in tree cover for the site (see Appendix C)

6 Enhancement Measures

The following measures are recommended to enhance the development site for further opportunities for bats and their habitats. These measures are not mitigation measures required to ensure no negative residual impacts but rather represent opportunities for enhancements to bats.

6.1 Artificial Bat Roost

In order to enhance the site for roosting bats, 2no. bat boxes may be installed on site during the operation phase. These bat boxes should be south-facing and at least 4m off the ground. If erecting on buildings, erect as close as possible to the eaves of the building, and if possible, on buildings located adjacent or close to a treeline. If erecting on a mature tree, the placement must be free from Ivy with no branches within a 1m radius around the location of the box.

Example of suitable bat boxes include the 1FF Schwegler Bat Box with Built-in Wooden Rear Panel and the 2F Schwegler Bat Box (General Purpose). This will accommodate Leisler's bat, *Pipistrelle* species and *Myotis* species. Figure 6-1(below) shows the suggested locations of the bat roosts.

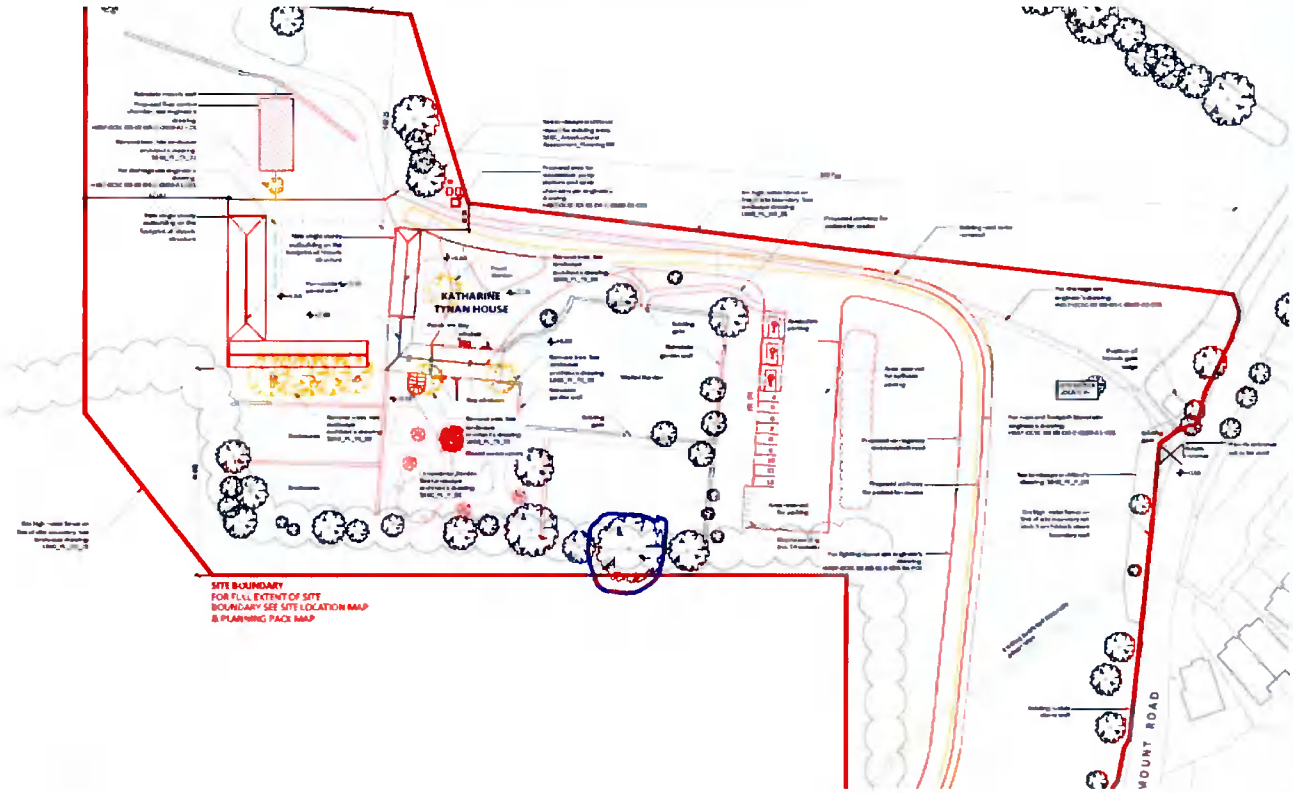


Figure 6-1: Suggested location for artificial roost/ Bat box

7 Residual Impacts

The residual impacts of the development following the implementation of mitigation measures are outlined below. It is important to note that these residual impacts assume the full implementation of the recommended mitigation measures.

Light levels and type during construction and operation

If the recommended lighting mitigation measures are implemented throughout the site, the residual impact on bats is expected to be negligible.

8 Conclusion

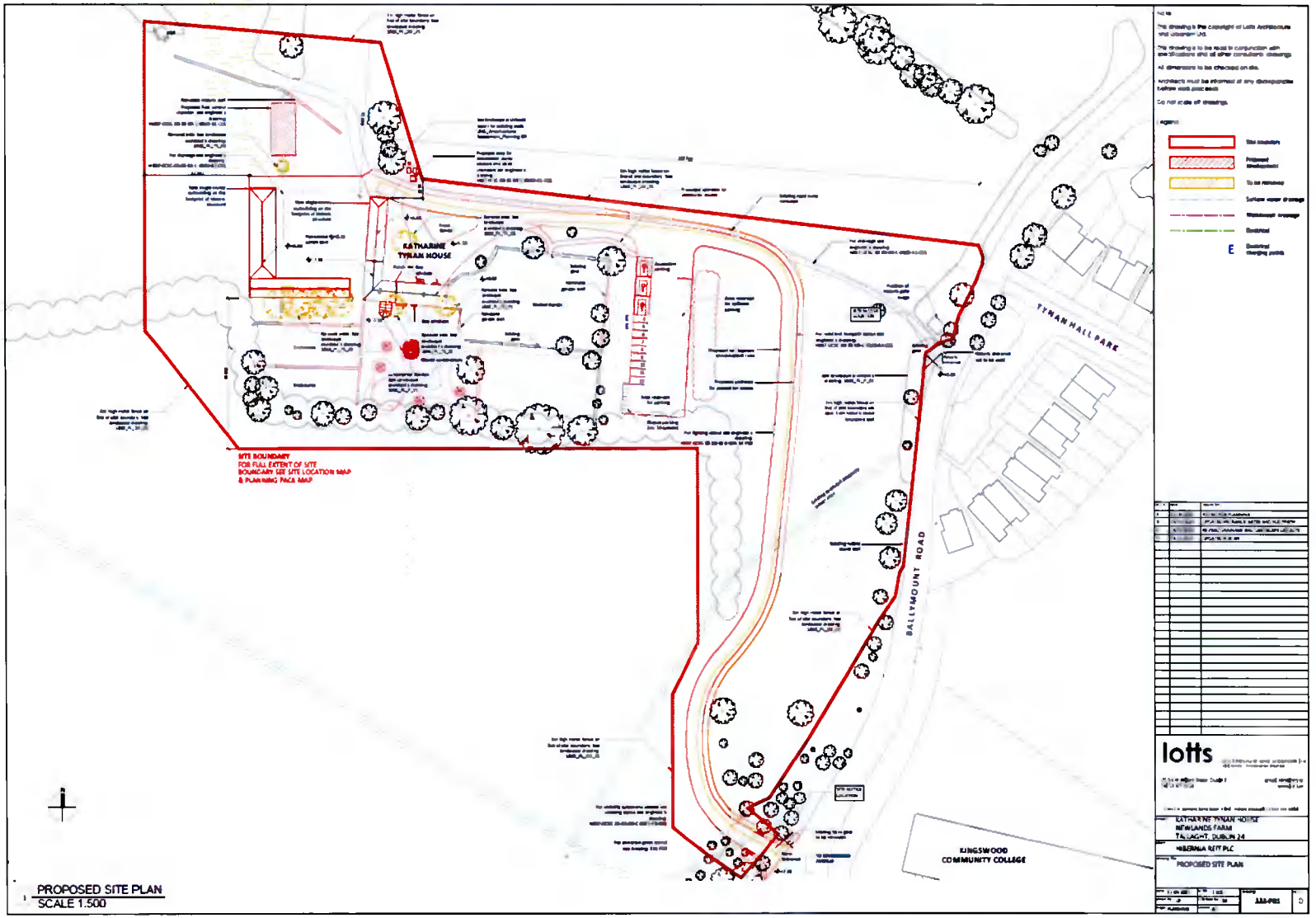
The development site is used regularly by three species of bats Including Leisler's Bat, Soprano Pipistrelle and Common Pipistrelle, as well as one record of an undetermined *Myotis* sp. Other bat species may be present.

The number of bats using the site was found to be low-moderate, with Leisler's bat being the most numerous. No roosting bats were found. Negative impacts are not expected on roosting bats, however commuting and/or foraging individuals could be impacted by the proposed development.

Mitigation measures, including sensitive lighting design, have been recommended for the construction and operation phases to reduce impacts on bats.

Provided the recommended mitigation measures are fully implemented the residual impacts on bats would be neutral.

A Site Layout Plan



Appendices

B Bat Roost Potential Survey Report

Newlands Farm Ecology - Bat Roost Assessment

April 2021 | jbaconsulting.ie

Project number 2020s0950

(DRAFT)

Hibernia REIT Plc
1 WML Windmill Lane
DUBLIN
Co Dublin
D02 F206

JBA Project Manager

Bernadette O'Connell
Block 660, Unit 8
Greenogue Business Plaza
Greenogue Business Park
Rathcoole
DUBLIN

Revision History

Revision Ref / Date Issued	Amendments	Issued to
16-04-2021	DRAFT report	David Courage

Contract

This report describes work commissioned by David Courage, on behalf of Hibernia REIT Plc, by a letter dated 02-03-2021. Malin Lundberg and Karen van Dorp of JBA Consulting carried out this work.

Prepared by ..... Karen van Dorp BSc MSc (Hons)
..... Ecologist
..... Malin Lundberg BSc MSc
..... Ecologist

Reviewed by ..... Patricia Byrne BSc (Hons) PhD MCIEEM
..... Senior Ecologist

Purpose

This document has been prepared as a Draft Report for Hibernia REIT Plc. JBA Consulting accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

JBA Consulting has no liability regarding the use of this report except to Hibernia REIT Plc.

Copyright

Carbon Footprint

A printed copy of the main text in this document will result in a carbon footprint of 91g 100% post-consumer recycled paper is used and 115g if primary-source paper is used. These figures assume the report is printed in black and white on A4 paper and in duplex.

JBA is aiming to reduce its per capita carbon emissions.

Contents

List of Figures

List of Tables

Abbreviations

BCI	Bat Conservation Ireland
BCT	Bat Conservation Trust
CIEEM	Chartered Institute of Ecology and Environmental Management
EC	European Communities
EU	European Union
IUCN	International Union for Conservation of Nature
NBDC	National Biodiversity Data Centre
NPWS	National Parks and Wildlife Service
PRF	Potential Roost Feature

1 Introduction

1.1 Background

JBA Consulting Ireland Ltd. has been commissioned by Hibernia REIT Plc to undertake a bat roost survey of two derelict buildings and two trees in relation to a proposed development at Newlands Farm, Kingswood, Dublin.

This report summarises the findings of the survey, and identifies the suitability of the surveyed buildings and trees for roosting bats. Recommendations for further surveys are made based on this suitability.

1.2 Legislative context

Wildlife Act 1976

Bat surveys are required at this site, as all bat species and their roosts are protected under the Wildlife Act (1976) and Wildlife [Amendment] Act (2000) in Ireland, and it is unlawful to disturb them without the appropriate Licence.

Bern and Bonn conventions

Bats are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

EU Habitats Directive

The EC Directive on The Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All bat species are protected under Annex IV of the EU Habitats Directive, while the Lesser Horseshoe Bat *Rhinolophus hipposideros* is listed under Annex II. Member states are required to designate Special Areas of Conservation for all species listed under Annex II in order to protect them.

Derogation Licence

Where bat roosts are present, an application may be made to the National Parks and Wildlife Service (NPWS) for a derogation licence to permit actions affecting bats or their roosts that would normally be prohibited by law. The applicant must demonstrate that there is no satisfactory alternative and that the action will not adversely affect the favourable conservation status of bat species. Each case is considered on its particular circumstances, and an application may be refused. Mitigation to reduce or compensate for any impact of development is generally a condition of the licence and should be proportionate to the impact. Mitigation measures may require particular timing of operations, protection of existing roosts or the creation of new roosts to replace the ones being lost. Monitoring of the effect of the mitigation is usually required (Kelleher and Marnell, 2006).

This report will identify the requirement for further bat surveys, to determine the usage of the proposed development site by bats in view of the fact that all bat species are protected under Irish national, EU and international legislation.

1.3 Site Location

The Newlands Farm site is located next to the Red Cow LUAS stop in Dublin; west of the M50 and south of Naas Road (N7) (Figure 1-1). The site is a greenfield site including fields of arable crop and pastures grazed by cattle. Coolfan Stream runs through the centre of the site in a west to east direction. Newlands Cross Cemetery and Ballymount Park lie along the eastern boundary of the site and Belgard Road borders the site to the west. Ballymount Road borders the site to the south. There are two derelict buildings on the site, Katharine Tynan House in the south and the Newlands Villa in the north.

1.4 Background to 2021 Bat Roost Assessment

Following a preliminary bat roost suitability survey as part of an ecological site survey of the Newlands Farm site by Malin Lundberg and William Mulville in August 2020, it was concluded that two mature trees within the site were found to have Low bat roost suitability. A Sycamore *Acer pseudoplatanus* close to the Newlands Villa in the north has a large hollow in the trunk, extending upwards. An Ash tree *Fraxinus excelsior*, close to Katherine Tynan House in the south, has thick Ivy *Hedera helix* and peeling bark. Additionally, the derelict Katherine Tynan House and the Newlands Villa were inspected from the outside for potential roosts. Multiple access points to the interior of the building were identified via missing slates in the roof and a missing door. The buildings were surveyed for signs of current or past habitation by bats. While the surveyors found no signs of habitation from the outside inspection, the buildings were deemed to have Moderate to High bat roost suitability (JBA, 2020) (Figure 1-1).

Therefore, detailed bat roost inspection surveys of Katharine Tynan House, the Newlands Villa and the two trees were carried out to inform this assessment. Survey methodology and results are described in the following sections.

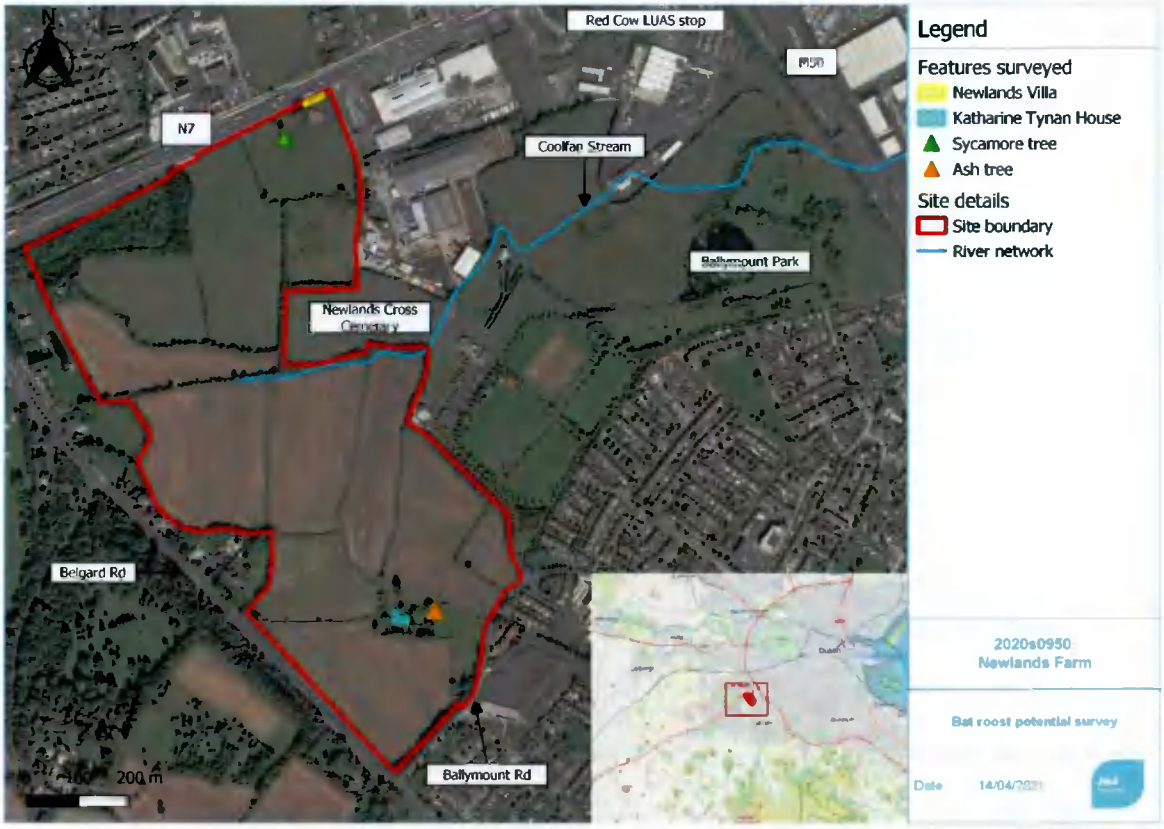


Figure 1-1 General site location and features to be surveyed for bat roost potential (as determined in JBA, 2020)

2 Methodology

This section provides details of any relevant existing data, the survey methodology used and the relevant guidelines. Conclusions were determined based on the above and on empirical evidence gained from the potential roost assessment surveys.

2.1 Desk-based Assessment

Historical records from the National Biodiversity Data Centre (NBDC) database (NBDC, 2021) were collected to provide background information on bat species recorded within four surrounding 2km² quadrats covering the Newlands Farm site over the past 10 years. Information on ecology and population trends of these species was collected using the following resources:

- Bat Conservation Ireland (BCI) - Conservation of Bats and Their Habitats (https://www.batconservationireland.org) (BCI, 2020)
- The IUCN Red List of Threatened Species (https://www.iucnredlist.org) (IUCN, 2019)

2.2 Bat Roost Potential Survey

The following documents were referenced in support of the study:

- Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland (Kelleher and Marnell, 2006);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust (Collins, 2016);
- A conservation plan for Irish vesper bats, Irish Wildlife Manual No. 20. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland (McAney, 2006);
- The status of EU protected habitats and species in Ireland: Conservation status in Ireland of habitats and species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government (NPWS, 2019);

The survey included visual inspection of the trees and buildings within the lands to assess their suitability for roosting bats. A detailed internal and external inspection of Katharine Tynan House, Newlands Villa and an inspection of two trees was carried out by Malin Lundberg and Karen van Dorp on 10 March 2021 to determine the presence of potential roost features (PRFs), following the methods specified in the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Ed.) (Collins, 2016).

Katharine Tynan House, Newlands Villa and the two trees were inspected for evidence of bat activity associated with potential roost sites including bat droppings, urine staining, feeding remains (e.g. moth wings), scratch marks and dead/alive bats. Potential roosting features were noted and assessed, including cracks, crevices, and roof voids and/or areas of missing mortar in the buildings.

The first floor of Katharine Tynan House could not be accessed due to instability of the building and was surveyed from the ground floor of the building. The first floor of Newlands Villa was inspected from a ladder, which gave a good view of the entire area.

On completion of the assessment, the trees and (parts of) the buildings were given a bat roost potential rating (i.e. Negligible, Low, Moderate or High) following the BCT guidelines (Table 2-1). These assessment results determine if any further surveys are required.

Table 2-1 Potential suitability assessment for bats (Collins, 2016)

Suitability	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitats. Suitable, but isolated habitat that could be used by small numbers of foraging bats such

Suitability	Roosting habitats	Commuting and foraging habitats
	suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential	as a lone tree (not in a parkland situation) or a patch of scrub
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed)	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts

2.3 Limitations and Constraints

The conclusion of this report necessarily relies on some assumptions and it is inevitably subject to some limitations. Most of these would not affect the conclusion but the following points are recorded and taken into consideration during the assessment to ensure the basis of the assessment is clear:

- The *precautionary principle* is used at all times, i.e. the absence of physical evidence cannot fully rule out the presence of bats within the habitat (e.g. evidence of bats can be weathered away or bats can roost in inaccessible cracks and crevices; commuting or foraging within suitable bat habitats will leave no physical evidence for surveyors to record during preliminary surveys)
- The survey was conducted in March, which is the time of year at which bats are in hibernation and are inactive. Therefore, any evidence of bats will be limited at this time of year

This report takes all the above limitations into consideration.

3 Results

3.1 Desktop Review

Historical records from the National Biodiversity Data Centre (NBDC) database (NBDC, 2021) identified four bat species recorded within four surrounding 2km² quadrats covering the Newlands Farm site over the past 10 years, namely Leisler's Bat *Nyctalus leisleri*; Common Pipistrelle *Pipistrellus pipistrellus*; Soprano *Pipistrelle Pipistrellus pygmaeus*; and Brown Long-eared Bat *Plecotus auratus*. These species are described below:

Leisler's Bat

The largest of the Irish bats, Leisler's Bat has distinctive level flight at greater heights than the other Irish species, from which it dives down after dung flies and beetles, with its echolocation frequency calls operating primarily within 20-30kHz. It can be seen soon after sunset flying over open spaces such as parks and fields, as well as woodlands and river valleys. Leisler's Bat is rare in Britain and the rest of Europe, but it is relatively common in Ireland. For this reason, the Irish population of Leisler's Bat is considered to be of International Importance. The population is monitored by the Car-based Bat Monitoring Scheme and its annual trend has shown significant increases since 2003 (IUCN, 2020; BCI, 2020).

Common Pipistrelle

The smallest of Ireland's bat species, the Common Pipistrelle forages in a variety of habitats including open woodland and woodland edges, shrubland, farmland, rural gardens, and urban areas. It has a rapid, twisting flight as they pursue their small prey items of midges, mosquitoes, and small moths. Their echolocation frequency calls typically fall within the 40-50kHz range. They are most likely to be seen flying around soon after dusk in both urban and rural areas. The population is monitored via the Car-based Bat Monitoring Scheme, which suggests the Common Pipistrelle has seen a notable population increase since 2003 (IUCN, 2020; BCI, 2020).

Soprano Pipistrelle

Equal in size to the Common Pipistrelle, the Soprano Pipistrelle typically forages around open woodland and woodland edges, shrubland, farmland, rural gardens, urban areas, and wetlands, and is more closely associated with water than the Common Pipistrelle. It's diet and foraging technique is similar to that of the Common Pipistrelle, but with a preference for small Diptera species (especially aquatic midges) and a higher frequency echolocation call, which generally ranges from 50-60kHz. The Soprano Pipistrelle populations is monitored through the Car-based Bat Monitoring Scheme. The data recorded from the scheme suggests that the populations has increased significantly since 2003 (IUCN, 2020; BCI, 2020).

Brown Long-eared Bat

The notable ears of this bat species are its most distinctive feature as they are almost as long as its body. The Brown Long-eared Bat prefers habitats that are sheltered, fairly open deciduous and coniferous woodland and parkland or well-wooded gardens. Brown Long–eared Bats use a foraging method known as foliage gleaning which means they pick up their prey directly from the leaves of trees and shrubs and in some cases off the ground. Their prey includes spiders, caterpillars, beetles, moths, and earwigs which they locate with their sensitive ears and by sight. Another notable feature about this species is that they emit their quiet echolocation sounds through their nose at frequencies ranging from 25–50kHz. A scheme for monitoring this species at its roosts was developed in 2007 (the Brown Long-eared Bat Roost Monitoring Scheme); and thus far the population has been considered stable (IUCN, 2020; BCI, 2020).

3.2 Survey Results

The inspection of Katharine Tynan House, Newlands Villa and the two trees (Figure 1-1) was carried out by JBA ecologists Malin Lundberg and Karen van Dorp on 10 March 2021 to determine the potential for bat roosts to be present. Weather conditions were rainy and windy (SW, 30km/h), and the temperature was 8°C. The results of this inspection are described in the sections below.

3.2.1 Katharine Tynan House

Katharine Tynan House is a derelict building that consists of a main building and an auxillary building that are connected internally. Both are plastered stone buildings. The auxillary building has a metal

cladding roof (Figure 3-1). There are three chimneys present. All windows and doors are boarded up with metal plates.

Figure 3-1 Katharine Tynan House (south facade)

3.2.1.1 External survey

On the external part of the building, multiple potential entry points were noted. These include openings in or above (partly closed-up) doors and windows, and cracks/crevices in the stone walls (Figure 3-2 and Figure 3-3). One corner of the building was covered in Ivy, with cracks and crevices underneath, providing a potential entrance. A part of the chimney wall on the northern facade has fallen down, which provides an entrance into the chimney and upwards (Figure 3-4). Upon inspection of the chimney, butterfly wings were discovered (Figure 3-5).

Table 3-1 summarises the findings of the bat roost potential inspection of the external parts of Katharine Tynan House that were recorded during the inspection.

Table 3-1 External PRFs of Katharine Tynan House

Structure	Roosting feature	Facing direction	Potential	Notes
Chimney - wall fallen on outside	Cracks	North	Moderate	Butterfly wings (potential feeding remains) Dry with no water entering
Corner of wall covered in Ivy	Cracks	North	Moderate	Crevices going into wall, covered by Ivy
Corner between higher and lower part of building	Large opening	Northeast	Moderate	Access via door
Wall surface coming off	Cracks	South	Moderate	Space in between outer layer and wall

Figure 3-2 Potential entrance above door in corner (north facade)

Figure 3-3 Space in between outer layer and wall

Figure 3-4 Ivy-covered corner and chimney opening (l), and chimney from below (r)

Figure 3-5 Looking up into the chimney, butterfly wings are visible in chimney (red circle)

3.2.1.2 Internal Survey

Upon inspection of the internal parts of Katharine Tynan House, three chimneys were found. Although these showed no evidence of bats, they were dry and would provide good cover for summer roosts (Figure 3-6). The first floor (inaccessible due to floor instability) and space between the ceiling and the roof (too high) could not be inspected (Figure 3-7). Given the presence of potential access points from the outside, bat roost potential could not be ruled out for this space. Table 3-2Table 3-1 summarises the findings of the bat roost potential inspection of the internal parts of Katharine Tynan House.

Table 3-2 Internal PRFs Katharine Tynan House

Structure	Roosting feature	Facing direction	Potential	Notes
Chimneys	Cracks	N/A	Moderate	Crevices in closed chimneys providing good cover. No rainwater entering.
Attic space	Potential void	N/A	Moderate	Access from outside via door entrance and missing roof tiles.

Figure 3-6 Chimneys inside Katharine Tynan House

Figure 3-7 Ceiling Katharine Tynan House

3.2.2 Newlands Villa

Newlands Villa is a derelict stable and consists of a brick built structure with a slate roof, and a loft on the first floor. Some of the external part of the building is covered in Ivy. The door on the north facade and some windows are open and there are large several openings in the roof.

3.2.2.1 External Survey

No cracks and/or crevices or evidence of bat activity were recorded on the outside of the building. Parts of the building were covered in Ivy, but this was too laminous or leafy to have bat roost potential (Figure 3-8).

Table 3-3 summarises the findings of the bat roost potential inspection of the external parts of the Newlands Villa.

Table 3-3 External PRFs Newlands Villa

Structure	Roosting feature	Facing direction	Potential	Notes
External part of building	N/A	Access from all sides	Negligible	No cracks/crevices. Ivy on wall too leafy with no thick stem. No evidence of bats recorded

Figure 3-8 North facade of Newlands Villa with open door and Ivy

3.2.2.2 Internal Survey

The internal part of Newlands Villa consists of several open spaces on the ground floor (Figure 3-10) and a large open space in the loft (Figure 3-9). Due to several large openings in the roof, it was very drafty and wet, especially in the loft. No evidence of bat activity was recorded. The potential for bat roosts was determined as Low.

Table 3-4 summarises the bat roost potential inspection of the internal parts of the Newlands Villa.

Table 3-4 Internal PRFs Newlands Villa

Structure	Roosting feature	Facing direction	Potential	Notes
Internal part of building	N/A	N/A	Low	Space very open, drafty, wet, no evidence of bats recorded

Figure 3-9 First floor of Newlands Villa

Figure 3-10 Ground floor of Newlands Villa

3.2.3 Sycamore Tree

The Sycamore tree stands along a stone wall by the entrance to the field southwest of Newlands Villa and is alive and ~20m in height (Figure 3-11). There is a large, upward opening in the trunk (at a height of ~1m above the ground), with no rainwater inside upon inspection (Figure 3-12). No evidence of bat activity was recorded. The bat roost potential for this tree was determined as Moderate.

Figure 3-11 Sycamore tree with roost potential (far right)

Figure 3-12 Large hole in Sycamore tree

3.2.4 Ash Tree

The Ash tree stands at the end of a stone wall by the entrance to the field east of Katherine Tynan House and is alive and ~20m in height (Figure 3-13). The tree is in good condition, with no broken limbs. The tree stem is covered in Ivy and no holes were recorded. No evidence of bat activity was recorded. The bat roost potential for this tree was determined as Low.

Figure 3-13 Ash tree (centre) with low roost potential

3.2.5 Summary

A summary of the appraisal of the bat roosting potential of Katharine Tynan House, Newlands Villa and the two trees is given below.

Katharine Tynan House

The numerous cracks and several large entrance openings in the external part of the building, as well as the chimneys present internally showed *Moderate* bat roost potential.

Newlands Villa

The external parts of Newlands Villa showed *Negligible* bat roost potential and internal parts showed *Low* bat roost potential.

Sycamore tree

This tree showed *Moderate* bat roost potential due to a large, dry opening in the trunk.

Ash tree

This tree showed *Low* bat roost potential.

Wider area

As previously concluded in the ecological appraisal report (JBA, 2020), the treelines, scrub, hedgerows and drainage ditches on-site will support a variety of insect life which may be important foraging features for bats. Additionally, this vegetation may provide connectivity of suitable habitats in the wider landscape for bats.

4 Conclusion and Recommendations

4.1 Conclusion of PRF Assessment of Structures

The bat roost assessment recorded three chimneys in Katharine Tynan House with potential bat roost features (Moderate potential). Additionally, the space between the ceiling and the roof could not be inspected, but may have Moderate bat roost potential. The internal parts of Newlands Villa showed Low bat roost potential.

4.2 Conclusion of PRF Assessment of Trees

The Sycamore tree, with a large upward opening in its trunk, showed Moderate bat roost potential and the Ash tree showed Low bat roost potential. Additionally, the vegetation and drainage ditches on-site may provide connectivity of suitable habitats in the wider landscape for bats.

4.3 Recommendations

Given the survey results and concluding remarks, and in accordance with relevant guidance (Collins, 2016) we would recommend the following should be conducted during the bat survey season (May-September) to further assess the presence of active bat roosts within the site:

Katharine Tynan House

Two separate presence/absence surveys

Of the two, one dusk emergence and a separate dawn re-entry survey

Newlands Villa

One presence/absence survey

The one survey should be either dusk emergence or dawn re-entry survey

Sycamore tree

Two separate presence/absence surveys

Of the two, one dusk emergence and a separate dawn re-entry survey

Bat Activity Surveys

In order to establish a baseline of bats using the site for commuting and foraging, it is necessary to conduct bat activity surveys during the months bats are active. These surveys would inform the assessment of a future development's potential impact on bats using the site and potential bat mitigation that may be required during and after works are undertaken.

One activity survey with accompanying static bat detector per month is recommended between the months May to August.

References

BCI, 2020. Bat Conservation Ireland - Conservation of Bats and Their Habitats (https://www.batconservationireland.org) (accessed 7 April 2021).

Collins, J. 2016. Bat Surveys for Professional Ecologists: Good Practise Guidelines (3rd edition) Bat Conservation Trust, London.

IUCN, 2019. The IUCN Red List of Threatened Species (https://www.iucnredlist.org) (accessed 7 April 2021).

JBA, 2020. Newlands Farm, Kingswood, Co. Dublin. Preliminary Ecological Appraisal.

Kelleher, C., & Marnell, F. 2006. Bat Mitigation Guidelines for Ireland. National Parks and Wildlife Service /Department of Environment, Heritage and Local Government.

NBDC, 2021. Biodiversity Maps - Map Viewer (http://maps.biodiversityireland.ie/#/Map) (accessed 7 April 2021)

JBA consulting

Offices at
Dublin
Limerick

Registered Office
24 Grove Island
Corbally
Limerick
Ireland

t: +353 (0) 61 345463
e:info@jbaconsulting.ie

JBA Consulting Engineers and Scientists Limited
Registration number 444752

JBA Group Ltd is certified to:
ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

Visit our website
www.jbaconsulting.ie

Appendices

C Tree Protection Strategy

murray & associates
landscape architecture

ARBORICULTURAL INVENTORY AND RECOMMENDED WORKS

Incorporating a

TREE PROTECTION STRATEGY

At

GROUNDS OF KATHARINE TYNAN HOUSE,
KINGSWOOD, DUBLIN 24.

FOR

HIBERNIA REIT

Murray & Associates
Landscape Architecture

16 The Seapoint Building
44-45 Clontarf Road, Dublin 3
Tel: +353 (0)1 8540090
Fax: +353 (0)1 8540095

mail@murray-associates.com
www.murray-associates.com

Member of the Irish Landscape Institute

Contents

ISSUE SHEET

Rev. No.	Issue Status	Date	Prepared By	Checked By
4	For planning issue	01.06.21	HMG/JW	JW
5	Planning RFI Issue	22.11.21	HMG/JW	JW

Introduction

The trees and hedgerows were surveyed on the 9TH April 2021 by the undersigned. The findings of this survey and assessment have been summarised and recorded in the following report. A number of mature trees on the development site area were surveyed and assessed. This report details the existing tree and hedgerow cover on the site and the recommended works for these trees. A number of the trees on the site date from the time of the main Katharine Tynan House and the focus of the report is their conservation and future management. Some of the trees in the vicinity of the house are seedlings and are interfering with the structure of the building and will need to be removed/dismantled. There is also evidence of damage and vandalism to a number of the veteran trees which is of great concern.

Scope

The subject site is the subject of planning permission for the restoration of the farmhouse and the creation of a cultural centre. The site contains a number of mature trees and this report has been commissioned to provide an arboricultural assessment of the site to assist the design team as they prepare detailed plans for the new development and to set out the recommended works to the trees to ensure their future conservation.

This report should be read with reference to the findings summarised and recorded in the Tree and Hedgerow Assessment report, conducted on 9th April 2021. The report should also be read in conjunction with the following drawings:

Landscape Plan (REF: **1860_PL_P_01);**
Tree Survey: (REF. **1860_TS_P_01**);
Arboricultural Impact Plan: (REF. **1860_TS_P_02**);

Proposed Development

The proposed development consists of the reconstruction and restoration of Katharine Tynan House and the associated ancillary garden restoration and visitor facilities.

The site is located to the west of Ballymount Road and to the North of Belgard Road. The site is currently disused and the buildings have fallen into disrepair. The proposed plan is to restore the existing buildings and create new visitor facilities which will be focused around the life and work of Katharine Tynan.

Figure 1 – Site location plan

A review of the 1888-1913 Osi map shows that there were a number of trees present on the site which appear to have survived to the current time. In particular, there is a line of trees shown along Ballymount Road, a number of which survive in mature form.

Figure 2 – Osi Historic Map

Methodology Employed

An initial tree survey and visual condition assessment was undertaken on the 9th April 2021. For the purpose of this report the trees were assessed in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction. Only trees with diameters of 75mm or greater were surveyed, and those smaller than this were noted in the survey. In accordance with section 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups.

Section 4.4.2.3 of BS 5837: 2012 states:

Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).

NOTE: The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories.

Tree Survey Methodology

Tree Species

Common and botanical names of the tree species were recorded.

Tree Crown Dimensions

Tree height (Ht), crown clearance (Cl) and crown-spread (NESW cardinal points) measurements are in metres and are estimated.

Stem Diameter (Dbh)

Measurements are in millimetres and taken at 1.5m from ground level, multiple stems (St) are recorded as a function of the BS:5837 RPA formulae described below.

Tree age classes were recorded as:

Y	Young	Recently planted (with 5 years or so)
SM	Semi-Mature	Well established young tree
EM	Early Mature	Established tree not yet fully grown
M	Mature	Full or near full grown tree
LM	Late Mature	Older specimen in full maturity
OM	Over Mature	Reached full maturity now declining through natural causes
Vet	Veteran	Notable due to large size, old age, ecological importance

Tree Physiological and Structural condition was graded as :

Good:	No obvious defects visible, vigour and form of tree good.
Fair:	Tree in average condition for its age and the environment.
Poor:	Tree shows signs of ill health/structural defect
Bad:	Tree in seriously bad health/major structural problem

Work Recommendations

Preliminary management recommendations are made where necessary and pertain to current site conditions unless otherwise stated.

Estimated Remaining Contribution (ERC)

The approximate number of years that a tree should continue to live and contribute amenity, conservation or landscape value to the site under current site condition.

The tree retention category system grades a tree's suitability for retention within a development:

A Indicates a tree of high quality and value. These are trees that are particularly good examples of their species, which also provide landscape value. These trees are in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)

B Indicates a tree of moderate quality and value. Trees that might be included in the high category, but are downgraded because of impaired condition. These trees are in such a condition as to make a significant contribution. (A minimum of 20 years is suggested)

C Indicates a tree of low quality and value - trees with an estimated remaining life expectancy of at least 10 years, or trees with a stem diameter of below 150mm and/or <10m in height.

U Trees that are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Sub Categories

Tree categories may be further categorised using the following sub-categories (e.g. C1, C2 or C3)

1 mainly Arboricultural qualities,

2 mainly landscape qualities,

3 mainly cultural values.

The Root Protection Area (RPA) is the minimum area around individual trees to be protected from disturbance during construction works; RPA is recorded as a radius in metres measured from the tree stem and is shown on the tree survey/constraints drawing as a circle with the tree stem in the centre. For single stem trees, the root protection area (RPA) should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

For trees with more than one stem, one of the two calculation methods below should be used. The calculated RPA for each tree should be capped to 707 m2.

For trees with two to five stems, the combined stem diameter should be calculated as follows:

$\sqrt{}$ ((stem diameter 1)2 + (stem diameter 2)2 ... + (stem diameter 5)2)

For trees with more than five stems, the combined stem diameter should be calculated as follows:

$\sqrt{}$ ((mean stem diameter)2 × number of stems)

The survey concentrated primarily on the significant trees located within the development area. The objective of this survey was to gather information regarding the tree's location on the proposed development site and the impact the proposed development may have on the trees. Please refer to appendix 1 for the tree inventory. Significant trees can be equated as those trees whose visual importance to the surrounding area is enough to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the age of the tree, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature. Tree diameters (DBH) were estimated at 1.5 meters above grade as per standard arboricultural practice. Tree height was measured with the use of a digital clinometer.

The trees were categorized in accordance with BS5837:2012.

Tree Survey Results

Category	Number of trees	Trees to be removed
A	10	1
B	8	3
C	9	5
U	0	0

Table 1. Category of the Trees surveyed (BS 5837:2012, Item 4.5 Tree categorisation method)

The trees within the site area are in fair to good condition. Some of the existing trees are seedling Sycamore which have established on the site after 1995 (see the aerial image of the site below from 1995) are causing damage to the structure of the existing house and should be removed.

Figure 3 – 1995 Aerial Survey

The main tree groups are the black pines to the north of the existing house and the Beech along the main driveway and also along the road boundary. All of these trees are Category A. There are further specimens of Sycamore dotted around the site area, and these are seedlings that have established in the site post 1995. A number of these trees are interfering with the structure of the building and will need to be removed.

In relation to the Ash on the site, a number of these specimens are showing signs of Ash Dieback (Chlara). This is a serious disease that causes rapid decline and failure of Ash. The main recommendation of this report is that the Ash on site need to be monitored for this disease and removed if they succumb to it. While it is a notifiable disease, it has become so endemic in the wider landscape that it would be academic at this point to report an occurrence of it.

Protected Tree Zone/Construction Exclusion Zone

Trees that are destined to be retained must be protected by barriers, signage and/or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected. Barriers should be fit for the purpose of excluding construction activity. The tree protection zone shall be set out as (figure 4).

D1 02 TREE PROTECTION FENCING
Scale 1:50

TREE PROTECTION FENCING - BS 5837:2012 Trees in relation to design, demolition and construction

All tree protection works to be in accordance with BS 5837:2012 and approved by Contract Administrator / Project Arborist / Landscape Architect.

All trees to be retained on site are to be protected by effective fencing defining the Construction Exclusion Zone (CEZ). The fencing excludes construction activities from the Root Protection Area (RPA) which contains sufficient rooting volume to ensure the survival of the tree.

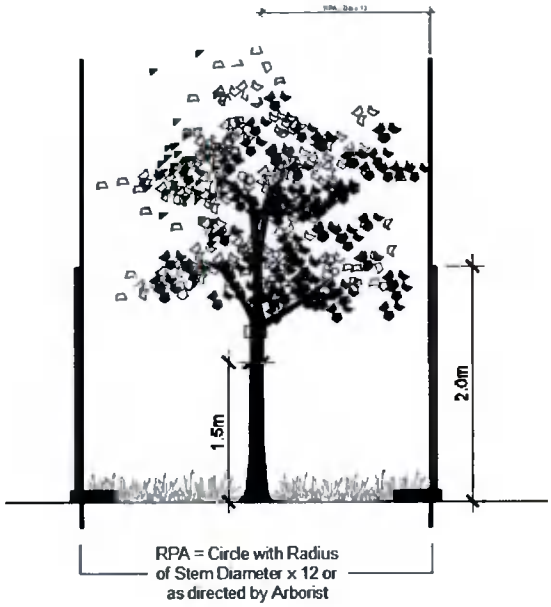
Fencing is to be installed before any materials or machinery are brought onto the site and before any demolition or development commences.

Once erected, fencing is to be regarded as sacrosanct, and should not be removed or altered without the prior consultation with the consulting Arborist or Landscape Architect.

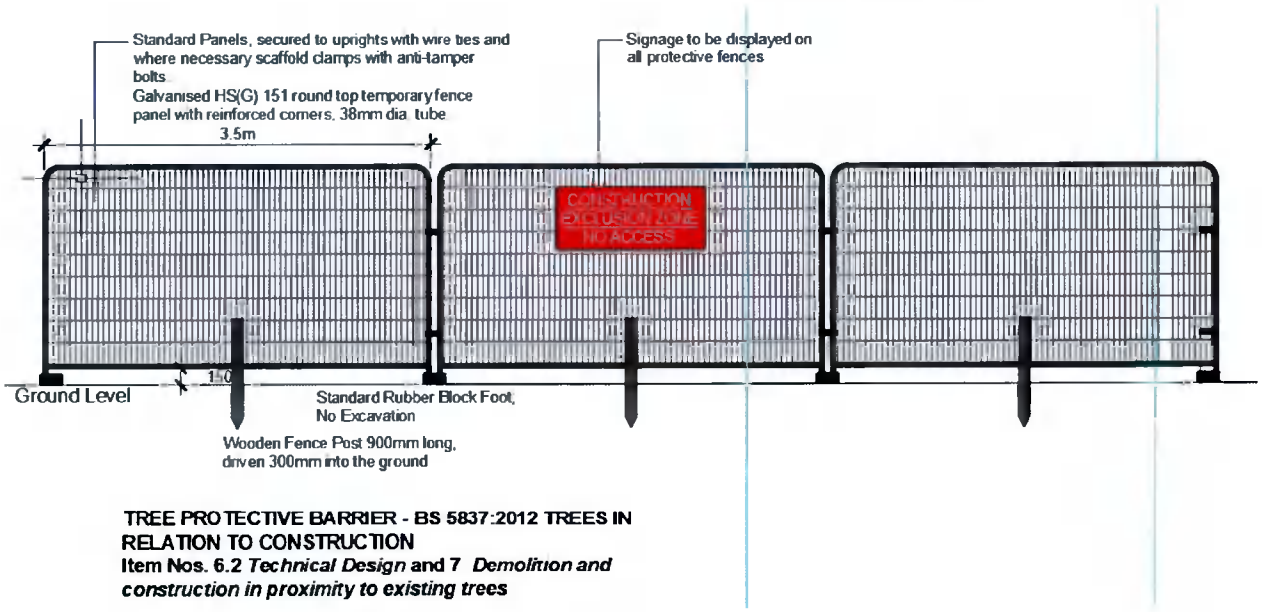
No access is to be permitted for workers to areas behind fencing line (except for specific works such as construction of no-dig paths or planting or with written authorisation from Contract Administrator / Project Arborist / Landscape Architect), no works may be carried out in this area, no materials, machinery, tools, soil or other objects can be stored here and absolutely no excavation may be carried out.

Protective fencing should consist of galvanised steel mesh panels in accordance with drawing (right) comprising a vertical and horizontal framework, staked in place and braced to resist impacts

Notices should be erected on the fence with following wording:
CONSTRUCTION EXCLUSION ZONE NO ACCESS



TREE PROTECTIVE BARRIER - BS 5837:2012 TREES IN RELATION TO CONSTRUCTION
Item Nos. 4.6 Root Protection Area



TREE PROTECTIVE BARRIER - BS 5837:2012 TREES IN RELATION TO CONSTRUCTION
Item Nos. 6.2 *Technical Design* and 7 *Demolition and construction in proximity to existing trees*

Figure 4 : Construction Fencing Detail

A notice 'Construction Exclusion Zone' shall be placed on tree protection fencing at regular intervals along the protective fencing. This notice shall include contact details for the Site Arborist. The noticed should say 'Strictly no access should be permitted to the R.P.A. unless instructed by the Site Arborist.', 'No materials of any kind are to be stored within the R.P.A.', 'No "Spilling out" of materials shall take place within the R.P.A.' and, 'No fires are to be lit within the R.P.A.'.

The Contractor is to maintain the protective fencing in good condition to the satisfaction of the Site Arborist for the duration of the contract. Any damage to fencing is to be reported to the Site Arborist immediately. Damaged fencing is to be repaired within 2 hours of the damage occurring. All works within the vicinity of the damaged fencing are to be suspended until the fencing is repaired.

Ground Protection

Although works within the RPA are not recommended should essential works be required within the RPA. The installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable(see figure.5) For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading. Any works within the RPA must be undertaken with prior consultation with the arborist.

01 02 'No-dig' Root Protection System - ALL AREAS IN ROOT PROTECTION AREA (RPA) OF RETAINED TREES
Scale 1:20

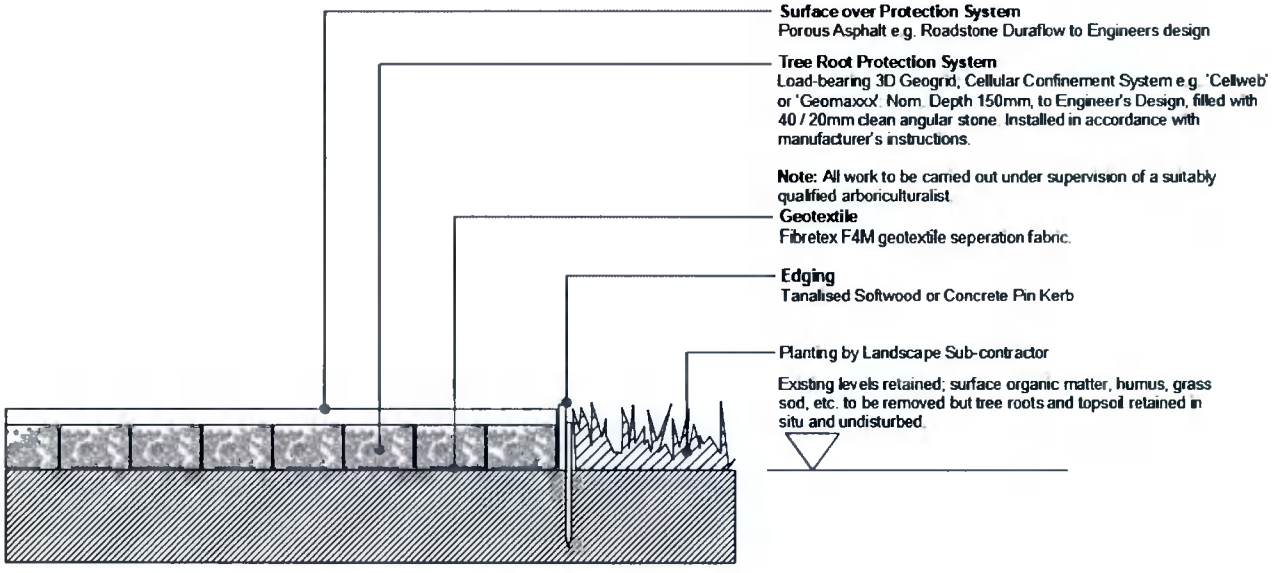


Figure 5 : Construction Fencing Detail

Arboricultural Method Statement/Tree Protection Strategy

The object of this arboricultural method statement/tree protection plan is to provide information for the building contractor/site manager on how the trees or hedgerows on the site need to be protected pre, during and post development works so that they can prepare their own site specific detailed method statement for their works

It is necessary for the protective fencing to be erected and all other mitigation measures required to be put in place prior to any development works commencing on site to ensure all retained trees and their critical rooting zone are protected for the duration of the works. Refer to tree protection details () for the position of protective fencing and additional mitigation measures

The protection for trees and hedgerows shown for retention will occur in three stages known as pre, during and post development.

Arboricultural Method Statement/Tree Protection Strategy – Management Stages		
Stage 1 – Pre development works	**Stage 2 - The construction works stage**	**Stage 3-Post Development Works**
1. Consultation with Arborist and developer	1. Protective Fencing – management and maintenance	1. Site inspection by arborist to ensure plan adhered to and trees protected
2. Site meeting - consultation with Arborist, developer, main contractor and sub-contractor	2. Excavations – works only commence when protective fencing in place	
3. Tree works – Appointment of professional tree surgeon	3. Working within the RPA – All works within the RPA to be discussed and agreed with the arborist	
4. Erection of protective fencing/Mitigation measures	4. Finished ground levels/Landscaping – All works to ensure the integrity of tree/s Protected.	

Table 3. Arboricultural Method Statement/Tree Protection Strategy – Management Stages

Stage 1 - Pre-Development Work

Prior to works commencing on site the following needs to be agreed and implemented

Appointment of an arborist (Site Arborist) to oversee all works relevant to trees;

Establishment of tree protection (refer to Drawing 1860_TS_P_02);

Monitoring of tree protection (adherence to the Tree Protection Code of Practice);

Supervision of works in the vicinity of trees;

Post construction re-assessment of retained trees

Site meeting

Prior to any works on site, it is necessary that a meeting be arranged between the project manager, site foreman, the project landscape architect, the project arborist and the local authority to identify and finalize the trees for removal and the line of protective fencing and any other mitigation measures.

Tree works

The Contractor shall take all precautions to ensure that any trees which are not required to be taken down under the contract shall remain undisturbed and undamaged. The Contractor must appoint a qualified arboricultural contractor to undertake all tree works subject to approval by the Consulting Arborist. The Contractor shall undertake no works to trees unless instructed by the Contract Administrator. Five working days' notice of intention to undertake works to be given.

The works are to be undertaken in accordance with BS 3998 2010.

Erection of protective fencing/Mitigation measures

The erection of protective fencing is to be erected to the fence line shown in tree protection plan. The fencing must adhere with BS 5837: 2012 (Figure 4 above). Signage must be placed on the fence to highlight its importance. Once the fencing is erected works can commence on-site.

Stage 2 - The Construction Works Stage

Protective Fencing

During the course of the construction works the integrity of the fencing must be respected and remain in place at all times. No building materials or soil heaps are to be stored within this area. Should essential works need to take place with the root protection area the project arborist must be informed in advance and any mitigation measures are to be put in place. The protective fencing must remain in situ for the duration of the project and must only be removed upon completion of all works.

Excavations

Excavation works are only to commence once the protective fence line is in place. The excavations need to be viewed on site once marked out with the project manager, site foreman and the project arborist in advanced of excavation to determine the extent of the impact and the works space required to allow the construction works proceed and to assess any additional mitigation measures that may be required to protect the retained trees. In certain areas it may be necessary to use alternative methods of excavation to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls, no dig technique etc.

Working within the RPA

The Site Arborist should be given 5 days' notice of any works within or access required to this zone.

All works must be carried out manually root pruning is to be undertaken by an arborist using handheld equipment such as a handsaw. For pedestrian movements within the R.P.A. the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading.

Finished ground levels/Landscaping

Trees that are to be retained should be protected so that soil disturbance and changes in soil levels do not occur. The construction exclusion zone surrounding a tree should contain sufficient rooting volume to ensure the survival of the tree. The location and erection of protective fences is as specified in accordance with BS 5837:2012 "Trees in relation to Construction" and on the

drawings (see drawing no.**1860 _TS_P_02**). Where changes in level occurs, these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels. All finished surfaces are to be porous to allow the free movement of water and gaseous exchange to the roots.
Where hard surfaces are proposed within the Root Protection Area (RPA) a strict no dig design excavation must be adhered to, avoiding unnecessary root loss. In the event where excavation is essential a hand dig system must be undertaken under arborist supervision. The hard surface must be permeable to allow the roots moisture infiltration and gaseous diffusion. Structurally, the hard surface should be designed to avoid localised compaction, by evenly distributing the carried weight. The sub-base will consist of a three-dimensional cellular confinement system with the build up to the engineer's detail and approved by the arborist.

All operations to be in accordance with BS 5837:2012 Trees in relation to design, demolition and construction -Recommendations.

Stage 3 - Post Development Works

The project is not to be considered complete until the arborist has inspected the site and is satisfied that all retained trees have been protected in accordance with the site specific Tree Protection Plan and there has been no negative impact on the retained trees on site as a result of the development.

Conclusions

The proposed development will have minimal impact on the existing tree cover on the site. Additional replanting works will mitigate any loss of trees as a result of the development and will be a net positive to the tree cover in this particular location. The proposed landscape plan details the planting of a significant number of new native broadleaf trees.

BS5837:2012 Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see [BS5837:2012]* ***4.5.7****.*			
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefi	Trees with no material conservation or other cultural value	

Tree Survey Tables

Tree ID	Name	Common Name	Stem Diameter [mm]	Tree Height [m]	Spread (m) N	E	S	W	Life Stage	Structural Condition	Physiological Condition	Quality Category	RPA [m]	Comments	Recommendations
T1	Pinus nigra	black pine	740	10	2	6	5	4	Mature	Good	Good	A2	8.88	Suppressed by Ivy	Remove Ivy and deadwood
T2	Pinus nigra	black pine	900	10	3	3	3	3	Mature	Fair	Fair	A2	10.8	Suppressed by ivy	Remove Ivy and deadwood
T3	Pinus nigra	black pine	780	12	2	2	4	3	Mature	Good	Good	A2	9.36	Suppressed by ivy	Remove Ivy and deadwood
T4	Pinus nigra	black pine	1250	13	5	5.1	5	5	Mature	Good	Good	A2	15	Suppressed by ivy	Remove Ivy and Deadwood
T5	Populus tremula	Aspen	450	7	1	0.8	0.84	2	Early-mature	Good	Good	C1	5.4	Surrounded by willows	None
T6	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T7	Acer pseudoplatanus	Sycamore	670	4	2.13	2	2	2.1	Mature	Good	Fair	B2	8.04	Suppressed by ivy	Remove Ivy
T8	Crataegus monogyna	Hawthorn	220	4	1.5	3	1.5	2	Early-mature	Fair	Fair	B3	2.64		Crown shape
T9	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house

T10	Fagus sylvatica	Common Beech	1640	12	4.53	4.53	5	5	Veteran	Good	Good	A2	15	Very suppressed by ivy Possible Lighting damage	All ivy to be removed
T12	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.63	3	3	Mature	Fair	Fair	B2	12.96	Coppice (possibly used for firewood)	Remove Ivy and deadwood
T13	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.63	3	3	Mature	Fair	Fair	B2	12.96	Coppice	Remove Ivy and deadwood
T14	Cupressus macrocarpa	Monterey Cypress	1870	17	4.65	5	5	4.6	Veteran	Good	Good	A1	15	Some dead wood in crown	Remove dead wood
T16	Acer pseudoplatanus	Sycamore	1080	9	2.63	3	3	2.6	Mature	Fair	Fair	B2	12.96	Some deadwood in crown	Remove deadwood
T17	Acer pseudoplatanus	Sycamore	1080	9	2.63	2.63	3	3	Mature	Fair	Fair	B2	12.96		
T18	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T19	Acer pseudoplatanus	Sycamore	426.5	4	3.4	3.5	3.5	3.5	Early-mature	Fair	Fair	C3	5.12	not from original planting, likely a seedling	Remove, creating damage to house
T22	Fraxinus excelsior	Common Ash	970	9	3.6	4	3.6	4	Mature	Good	Good	B1	11.64	Suppressed by Ivy. Monitor for signs of Ash Dieback	Remove deadwood

T23	Pinus sylvestris	Scots Pine												Not on site	
T24	Fagus sylvatica	Common Beech	1080	12	4.34	5	5	4.34	Veteran	Poor	Good	A3	12.96	Fire damage to base	Remove 25 pc of crown to lighten
T25	Fagus sylvatica	Common Beech	1080	13	4.14	4.14	3	3	Veteran	Poor	Good	A2	12.96	Suppressed by ivy	Remove Ivy and crown thin by 25%
T26	Fagus sylvatica	Common Beech	1100	13	3.14	3.14	4	4	Veteran	Poor	Good	A1	13.2	Suppressed by ivy	Remove ivy and crown thin by 25%
T27	Fagus sylvatica	Common Beech	840	13	3.14	4	4	3.14	Veteran	Poor	Good	A2	10.08	Suppressed by ivy	Remove ivy and crown thin by 25%
G1	Fraxinus Excelcior	Ash species	620	9					Mature	Good	Good	B3		Can be kept for aesthetic purpose of mature trees.	Not majorly significant if removal during construction is necessary.
H1	Fraxinus Excelcior, fagus sylvatica, Cratagus Monogyna	Ash, Beech, Hawthorn							Mature	Good	Good				

Disclaimers

This report is intended solely for the benefit of the parties to whom it is addressed, and no responsibility is extended to any third party for the whole or any part of its contents. The conclusions and recommendations in this report are only valid for a period of one year. This period of validity may be reduced in the case of any change in conditions to or in proximity to the tree. In the event of adverse weather conditions, there is the possibility of any tree despite good report surveys, falling over.

In the event of a falling tree causing damage to residential or non-residential buildings in their proximity, no liability will attach to this firm, in the event of damage by such trees, to any person, any building public or private, or any mechanical vehicle or otherwise. Recommendations made in this report are subject to the knowledge and expertise of the qualified Arborist that carried out the above inspections.

Signed john ward

Dated: 22nd November 2021

John Ward

ISA Certified Arborist

References

Bat Conservation Ireland, 2012. Bats and Appropriate Assessment Guidelines, Bat Conservation Ireland, available: https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIreland-AA-Guidelines_Version1.pdf

BCI, 2021. Bat Conservation Ireland | Conservation of Bats and Their Habitats [online], Bat Conservation Ireland, available: https://www.batconservationireland.org/

Collins, J. (Ed.), 2016. Bat Surveys for Professional Ecologists: Good Practise Guidelines (3rd Edition) Bat Conservation Trust, 3rd edn. ed, The Bat Conservation Trust, London.

IUCN, 2021. [Online] https://www.iucnredlist.org

Kelleher, C., Marnell, F., 2006. Bat Mitigation Guidelines for Ireland, National Parks and Wildlife Service /Department of Environment, Heritage and Local Government, available: https://www.npws.ie/sites/default/files/publications/pdf/IWM25.pdf.

McAney, K., 2006. A conservation plan for Irish vesper bats. Irish Wildlife Manuals, No. 20. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

NBDC, 2021. Biodiversity Maps - Map Viewer [online], National Biodiversity Data Centre Biodiversity Maps, available: http://maps.biodiversityireland.ie/#/Map

NPWS, 2019. The Status of EU Protected Habitats and Species in Ireland 2019. Overview Volume 1., National Parks and Wildlife Service / Department of Arts, Heritage and the Gaeltacht.

NPWS, 2021. Habitat and Species Data | National Parks & Wildlife Service [online], available: https://www.npws.ie/maps-and-data/habitat-and-species-data

NRA (n.d.) Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes, National Roads Authority, available: http://www.tii.ie/technical-services/environment/planning/Best_Practice_Guidelines_for_the_Conservation_of_Bats_in_the_Planning_of_National_Road_Schemes.pdf

JBA consulting

Offices at
Dublin
Limerick

Registered Office
24 Grove Island
Corbally
Limerick
Ireland

t: +353 (0) 61 345463
e:info@jbaconsulting.ie

JBA Consulting Engineers and Scientists Limited
Registration number 444752

JBA Group Ltd is certified to:
ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007

Visit our website
www.jbaconsulting.ie

E Natura 2000 site briefs, qualifying interests and their threats and pressures.

Site Name	Brief	Qualifying Interests	Project-relevant Threats / Pressures: Impact (Source)
Glenasmole Valley SAC	Glenasmole Valley lies at the northern foothills of the Dublin and Wicklow Mountains. Dry calcareous pasture grassland, improved to varying degrees, is a main habitat of the valley sides and occurs in association with wet grassland and, in places of seepage, fen or marsh type vegetation. The site has important examples of petrifying springs. The physical and chemical properties of the springs have been studied. Good examples of orchid rich calcareous grassland, including *Pseudorchis albida* (legally protected) and *Orchis morio* (Red Data Book species) are found here. Molinia meadows are also represented (NPWS, 2017a).	- Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites) [6210] - *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] - Petrifying springs with tufa formation (*Cratoneurion*)* [7220] (NPWS, 2020a)	Discontinuous urbanisation: Moderate impact (outside)# (Full list of threats / pressures - NPWS (2017a)
Wicklow Mountains SAC	An extensive upland site comprising much of the Wicklow Mountains and extending into Co. Dublin. The solid geology is mainly Leinster granites, flanked by Ordovician schists, mudstones and volcanics. The area has been glaciated and features fine examples of high corrie lakes, deep valleys and moraines. The site includes the headwaters of several major rivers, including the Liffey, the Dargle and the Slaney. The substrate over much of the site is peat, with poor mineral soil on the slopes and lower ground. Exposed rock and scree are included in the features found in the SAC. The dominant habitats on the site are blanket bog, heaths and upland grassland. The site comprises the largest complex of upland habitats in eastern Ireland, with important examples of blanket bog, wet heath and dry heath, extensive in area and mostly of good quality. Alpine heath occurs at high levels, along with calcareous and siliceous rocky habitats harbouring an arctic-alpine flora. A fine series of oligotrophic lakes occur, with some recorded to contain Arctic char (*Salvelinus alpinus*). Several oakwoods of moderate quality, typical of the dry acidic woods of eastern Ireland, are found. Eurasian Otter (*Lutra lutra*) occurs on several of the riverine systems (NPWS, 2017b).	- Otter (*Lutra lutra*) [1355] - Oligotrophic water containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110] - Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletalia uniflorae and/or Isoeto-Nanojuncetea [3130] - Natural dystrophic lakes and ponds [3160] - Northern Atlantic wet heaths with *Erica tetralix* [4010] - European dry heaths [4030] - Alpine and Boreal heaths [4060] - Calaminarian grasslands of the *Violetalia calaminariae* [6130] - Species-rich Nardus grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) * [6230] - Blanket bogs (* if active bog) [7130] - Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) [8110] - Calcareous rocky slopes with chasmophytic vegetation [8210] - Siliceous rocky slopes with chasmophytic vegetation [8220] - Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] (NPWS, 2017c)	Wildlife watching: Low impact (inside)# Trampling, overuse: Moderate impact (both)# Urbanised areas, human habitation: Moderate impact (both)# Collection (fungi, lichen, berries etc): Low impact (inside)# Outdoor sports and leisure activities, recreational activities: Moderate impact (both)# Paths, tracks, cycling tracks: Moderate impact (both)# (Full list of threats / pressures - NPWS, 2017b)
Wicklow Mountains SPA	This is an extensive upland site, comprising a substantial part of the Wicklow Mountains. The site supports good examples of both upland and woodland bird communities. It has breeding Merlin *Falco columbarius* and Peregrine Falcon	- Merlin (*Falco columbarius*) [A098] - Peregrine Falcon (*Falco peregrinus*) [A103] (NPWS 2020b)	N/A (Full list of threats / pressures - NPWS, 2018a)

Site Name	Brief	Qualifying Interests	Project-relevant Threats / Pressures: Impact (Source)
	Falco peregrinus, as well as Ring Ouzel *Turdus torquatus* and Red Grouse *Lagopus lagopus*, both of the latter being Red listed in Ireland. It is the only site in Ireland where Common Merganser *Mergus merganser* breeds regularly (NPWS 2018a).		
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, 2017d).	- Petrifying Springs* [1130] - Narrow-mouthed Whorl Snail (Vertigo angustior) [1014] - Desmoulin's Whorl Snail (Vertigo moulinsiana) [1016] (Source: NPWS (2018b)	Continuous urbanisation: Moderate Impact (outside) Dispersed habitation: Low Impact (outside)# Roads, motorways: Low impact (outside)# (Full list of threats / pressures - NPWS, 2017d)
South Dublin Bay SAC	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, 2017e)	Tidal Mudflats and Sandflats [1140] Annual vegetation of drift lines [1210] Salicornia and other annuals colonising mud and sand [1310] Embryonic shifting dunes [2110] (Source: 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, 2017e)

Site Name	Brief	Qualifying Interests	Project-relevant Threats / Pressures: Impact (Source)
South Dublin Bay and River Tolka Estuary SPA	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. (Source: 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] (Source: NPWS, 2015b)	Roads, motorways Medium (outside) Urbanised areas, human habitation High (outside) Discharges High (inside) (Source: NPWS, 2017e)
North Dublin Bay SAC	The sediment which forms North Bull 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. (Source: NPWS, 2017f)	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] *Petalophyllum ralfsii* (Petalwort) [1395] (Source: NPWS, 2013b)	Urbanised areas, human habitation High (outside) Discharges High (inside) (Source: NPWS, 2017f)
North Bull Island SPA	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	Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] Shelduck (*Tadorna tadorna*) [A048] Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054]	Roads, motorways Medium (outside) Continuous urbanisation

Site Name	Brief	Qualifying Interests	Project-relevant Threats / Pressures: Impact (Source)
	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. (Source: NPWS, 2014)	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] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Turnstone (*Arenaria interpres*) [A169] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Wetland and Waterbirds [A999] (Source: NPWS, 2015c)	Medium (outside) Discharges Medium (both) (Source: NPWS, 2017g)

* = priority Annex I habitat

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

F NBDC Records

F.1 Recent records (within 10 years) of protected species within the 2km squares (O02U, O02Z, O03Q, O03V) of the site (National Biodiversity Data Centre, 2021)

Species name	Date of last record	Title of dataset	Designation
Common Frog (*Rana temporaria*)	30/08/2019	Amphibians and reptiles of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Barn Swallow (*Hirundo rustica*)	15/09/2017	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*)	30/07/2017	Birds of Ireland	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*)	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 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 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*)	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
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

Species name	Date of last record	Title of dataset	Designation
Common Snipe (*Gallinago gallinago*)	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 III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Starling (*Sturnus vulgaris*)	09/02/2017	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 Wood Pigeon (*Columba palumbus*)	04/06/2017	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
Eurasian Teal (*Anas crecca*)	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
Eurasian Tree Sparrow (*Passer montanus*)	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
Eurasian Wigeon (*Anas penelope*)	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
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

Species name	Date of last record	Title of dataset	Designation
House Martin (*Delichon urbicum*)	15/09/2017	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
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
Lesser Black-backed Gull (*Larus fuscus*)	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*)	21/11/2020	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*)	10/02/2016	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
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
Peregrine Falcon (*Falco peregrinus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
Rock Pigeon (*Columba livia*)	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

Species name	Date of last record	Title of dataset	Designation
Sky Lark (*Alauda arvensis*)	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
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
Yellowhammer (*Emberiza citrinella*)	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
Freshwater White-clawed Crayfish (*Austropotamobius pallipes*)	18/08/2013	River Biologists' Database (EPA)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Blue Fleabane (*Erigeron acer*)	26/07/2017	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Threatened Species: Endangered
Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*)	07/06/2019	Bees of Ireland	Threatened Species: Near threatened
Moss Carder-bee (*Bombus (Thoracombus) muscorum*)	02/08/2019	Bees of Ireland	Threatened Species: Near threatened
Eurasian Badger (*Meles meles*)	24/01/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Eurasian Pygmy Shrew (*Sorex minutus*)	15/09/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Eurasian Red Squirrel (*Sciurus vulgaris*)	24/01/2015	Atlas of Mammals in Ireland 2010-2015	Protected Species: Wildlife Acts
Leisler's Bat (*Nyctalus leisleri*)	05/09/2011	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

Species name	Date of last record	Title of dataset	Designation
Pine Marten (*Martes martes*)	31/12/2012	Irish Squirrel Survey 2012	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Common Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	05/09/2011	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	22/04/2011	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
West European Hedgehog (*Erinaceus europaeus*)	04/10/2020	Hedgehogs of Ireland	Protected Species: Wildlife Acts

F.2 Recent records (within 10 years) of invasive non-native species within the 2km squares (O02U, O02Z, O03Q, O03V) of the site (National Biodiversity Data Centre, 2021)

Species name	Date of last record	Title of dataset	Designation
Arthurdendyus triangulatus	01/04/2012	New Zealand Flatworm (*Arthurdendyus triangulates*) Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
Butterfly-bush (*Buddleja davidii*)	13/08/2020	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Himalayan Balsam (*Impatiens glandulifera*)	31/12/2017	National Invasive Species Database	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
Japanese Knotweed (*Reynoutria japonica*)	09/05/2020	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)
Sycamore (*Acer pseudoplatanus*)	22/04/2016	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Wild Parsnip (*Pastinaca sativa*)	11/07/2015	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Eastern Grey Squirrel (*Sciurus carolinensis*)	31/12/2017	National Invasive Species Database	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*)	19/10/2018	Mammals of Ireland 2016-2025	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
Siberian Chipmunk (*Tamias sibiricus*)	15/07/2011	National Invasive Species Database	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)

References

BCT (2018) 'Bats and artifical lighting in the UK', available: https://cdn.bats.org.uk/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?mtime=20181113114229 [accessed 1 Jun 2021].

Catchment Science & Management Unit (2021) 3rd Cycle Draft Liffey and Dublin Bay Catchment Report (HA 09), available: https://catchments.ie/wp-content/files/catchmentassessments/09%20Liffey%20and%20Dublin%20Bay%20Catchment%20Summary%20WFD%20Cycle%203.pdf [accessed 6 Sep 2021].

CIEEM (2018) 'Guidelines For Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine'.

Collins, J. (Ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition), 3rd edn. ed, The Bat Conservation Trust, London.

DoHPLG (2018) 'River Basin Management Plan for Ireland 2018-2021', available: https://www.housing.gov.ie/sites/default/files/publications/files/rbmp_report_english_web_version_final_0.pdf [accessed 22 Jan 2019].

Dublin City Council (2021) 'Greater Dublin Regional Code of Practice for Drainage Works', available: https://www.dublincity.ie/sites/default/files/media/file-uploads/2018-08/Greater_Dublin_Regional_Code_of_Practice_V6-0.pdf [accessed 19 Apr 2021].

EPA (2017) Guidelines on the Information to Be Contained in Environmental Impact Assessment Reports DRAFT, DRAFT, Environmental Protection Agency, available: http://www.epa.ie/pubs/advice/ea/EPA%20EIAR%20Guidelines.pdf [accessed 24 Aug 2017].

Fossitt, J.A. (2000) A Guide to Habitats in Ireland, Heritage Council of Ireland series, Heritage Council/Chomhairle Oidhreachta: Kilkenny.

GSI (2021) Geological Survey Ireland Spatial Resources [online], available: https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228 [accessed 15 Jan 2020].

Irish Water (2021) Ringsend Wastewater Treatment Plant Upgrade Project [online], Irish Water, available: https://www.water.ie/projects-plans/ringsend/ [accessed 12 Jan 2021].

JBA (2021) Refurbishment of Katharine Tynan House (Newlands Farm) - Screening for Appropriate Assessment, JBA Consulting Engineers and Scientists Ltd.

Murray & Associates Landscape Architecture (2021) Arboricultural Inventory and Recommended Works - Incorporating a Tree Protection Strategy at Grounds of Katherine Tynan House, Kingswood, Dublin 24.

NBDC (2021) Biodiversity Maps - Map Viewer [online], National Biodiversity Data Centre Biodiversity Maps, available: https://maps.biodiversityireland.ie/Map [accessed 14 Jan 2021].

NPWS (2009a) 'Site Synopsis Grand Canal 002104'.

NPWS (2009b) 'Dodder Valley 000991'.

NPWS (2009c) 'Lugmore Glen 001212 - Site Synopsis'.

NPWS (2009d) 'Site Synopsis Liffey Valley 000128'.

NPWS (2009e) 'Slade of Saggart and Crooksling Glen 000211 - Site Synopsis'.

NPWS (2009f) 'Site Synopsis Royal Canal 002103'.

NPWS (2013) 'Conservation Objectives: North Dublin Bay SAC 000206. Version 1.', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000206.pdf [accessed 18 Jun 2018].

NPWS (2014) 'Site Synopsis: North Bull Island SPA 004006', available: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004006.pdf [accessed 17 Jun 2019].

NPWS (2015a) 'Site Synopsis: South Dublin Bay and River Tolka Estuary SPA (004024)', available: https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004024.pdf [accessed 17 Jun 2019].

NPWS (2015b) 'Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004024.pdf [accessed 17 Jun 2019].

NPWS (2015c) 'Conservation Objectives: North Bull Island SPA 004006. Version 1.', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004006.pdf [accessed 17 Jun 2019].

NPWS (2017a) 'Natura 2000 Standard Data Form - Glenasmole Valley SAC', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF001209.pdf [accessed 12 Dec 2018].

NPWS (2017b) 'Natura 2000 - Standard Data Form: Wicklow Mountains SAC 002122', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF002122.pdf [accessed 24 Jun 2019].

NPWS (2017c) 'Conservation Objectives: Wicklow Mountains SAC 002122', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002122.pdf [accessed 24 Jun 2019].

NPWS (2017d) 'Natura 2000 Standard Data Form - Rye Water Valley/Carton SAC', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF001398.pdf [accessed 12 Dec 2018].

NPWS (2017e) 'Natura 2000 Standard Data Form - South Dublin Bay and River Tolka Estuary SPA 004024', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004024.pdf [accessed 17 Jun 2019].

NPWS (2017f) 'Natura 2000 - Standard Data Form: North Dublin Bay 000206', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF000206.pdf [accessed 18 Jun 2019].

NPWS (2017g) 'Natura 2000 - Standard Data Form: North Bull Island SPA 004006', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004006.pdf [accessed 18 Jun 2019].

NPWS (2018a) 'Wicklow Mountains SPA 004040 - Natura Standard Data Form', available: https://www.npws.ie/sites/default/files/protected-sites/natura2000/NF004040.pdf [accessed 13 Aug 2020].

NPWS (2018b) 'Conservation Objectives Rye Water Valley/Carton SAC (001398)', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001398.pdf [accessed 9 Oct 2019].

NPWS (2019a) The Status of EU Protected Habitats and Species in Ireland. Volume 1: Summary Overview., Unpublished NPWS Report, National Parks and Wildlife Service / Department of Culture, Heritage and the Gaeltacht, available: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf [accessed 30 Sep 2019].

NPWS (2019b) The Status of EU Protected Habitats and Species in Ireland. Volume 2: Habitat Assessments., Edited by: Dierdre Lynn and Fionnuala O'Neill, available: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol2_Habitats_Article17.pdf [accessed 31 Oct 2019].

NPWS (2019c) The Status of EU Protected Habitats and Species in Ireland. Volume 3: Species Assessments, Edited by: Dierdre Lynn and Fionnuala O'Neill, available: https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol3_Species_Article17.pdf [accessed 31 Oct 2019].

NPWS (2020a) 'Glenasmole Valley SAC 001209 - Conservation Objectives', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO001209.pdf [accessed 13 Aug 2020].

NPWS (2020b) 'Wicklow Mountains SPA 004040- Conservation Objectives', available: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004040.pdf [accessed 13 Aug 2020].

NRA (2009) National Roads Authority Guidelines for Assessment of Ecological Impacts of National Road Schemes., Transport Infrastructure Ireland, available: http://www.tii.ie/technical-services/environment/planning/Guidelines-for-Assessment-of-Ecological-Impacts-of-National-Road-Schemes.pdf [accessed 10 Apr 2017].

Parnell, J., Curtis, T. (2012) Webb's An Irish Flora [online], 8th ed, Trinity College Dublin, available: http://www.corkuniversitypress.com/product-p/9781859184783.htm [accessed 1 Nov 2021].

SDCC (2016a) South Dublin County Council Development Plan 2016-2022 Index Map, South Dublin County Council.

SDCC (2016b) Screening for Appropriate Assessment South Dublin County Council Development Plan 2016-2022, available: https://www.southdublindevplan.ie/sites/default/files/documents/AA%20Screening%20Report%20for%20SDCC%20Development%20Plan%202016-2022%20June%202016.pdf [accessed 18 Dec 2018].

Smith, G.F., O'Donoghue, P., O'Hora, K., Delaney, E. (2011) 'Best practice guidance for habitat survey and mapping', The Heritage Council: Ireland.

Tyrie, C. (2021) Invasive Alien Species Northern Ireland - Symphoricarpos Albus (L.) S.F.Blake - Snowberry [online], available: http://www.habitas.org.uk/invasive/species.asp?item=4329 [accessed 13 Jul 2021].

Wray, S., Wells, D., Long, E., Mitchell-Jones, T. (2010) 'Valuing Bats in Ecological Impact Assessment', In Practice, Dec 2010(70), 23–25.

JBA consulting

Offices at
Dublin
Limerick

Registered Office
24 Grove Island
Corbally
Limerick
Ireland

t: +353 (0) 61 345463
e:info@jbaconsulting.ie

JBA Consulting Engineers and Scientists Limited
Registration number 444752

JBA Group Ltd is certified to:
ISO 9001:2015
ISO 14001:2015
ISO 27001:2013

Visit our website
www.jbaconsulting.ie