Adamstown Boulevard Phase 1
Adamstown SDZ
Ecological Appraisal

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Brady Shipman Martin
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Client: Adamstown Station & Boulevard Ltd

Date: 26 April 2022

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Contents

1 Introduction

Adamstown Station & Boulevard Ltd is seeking permission and outline permission from South Dublin County Council for a proposed residential development within the Adamstown Boulevard tile in Adamstown Strategic Development Zone.

This document comprises an appraisal of the likely effects on biodiversity (flora and fauna) of the proposed development.

The potential for any significant effects on sites designated as European (Natura 2000) sites, under the EU Habitats and Birds Directives was also appraised, and the results of that study are presented in a separate report (Appropriate Assessment Screening Report).

Brady Shipman Martin was commissioned to prepare this report. The work was carried out by Ecologist Matthew Hague BSc MSc Adv. Dip. Plan. & Env. Law CEnv MCIEEM. Matthew is an Associate with Brady Shipman Martin and is a highly experienced and qualified ecologist is a highly experienced and qualified ecologist, with a master's degree in Ecosystem Conservation and Landscape Management. He has 20 years of experience in ecological and environmental consultancy, across a wide range of sectors. He has prepared numerous reports for AA Screening as well as Natura Impact Statements, for projects of all scales, from small residential developments to nationally important infrastructure projects.

Matthew is a Chartered Environmentalist (CEnv) and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Matthew has also completed an Advanced Diploma in Planning and Environmental Law, at King's Inns and is a member of the Irish Environmental Law Association (IELA).

2 Methodology

2.1 Introduction

A detailed desk-based assessment has been undertaken, and a number of comprehensive ecological surveys have been carried out at the site. These include habitat and botanical (hedgerow appraisal) surveys, as well as large mammal, breeding bird and bat surveys. These were undertaken by the author and other specialist ecologists (Mr Brian Keeley, bat and large mammal ecologist; Dr Joanne Denyer MCIEEM, botanist; and Mr John Fox, ornithologist).

These surveys covered the entire tile at Adamstown Boulevard, as well as to the north, in the adjacent Aderrig tile. Preliminary and scoping surveys were first undertaken by the author in the summer of 2018. Specialist field surveys were then undertaken in 2021, on multiple occasions between July and October.

A final site survey was undertaken by the author in the preparation of this report on 29 March 2022.

This Ecological Appraisal has regard to the following **publications**:

- Environmental Protection Agency's (EPA) *Guidelines on the Information to be Contained in Environmental Impact Statements* (2002) (and revised and draft guidelines 2017);
- EPA *Advice Notes of Current Practice (in the Preparation of Environmental Impact Statements)* (2003) (and revised advice notes 2015);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Local Government and Heritage, 2018);*
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (Transport Infrastructure Ireland (formerly the National Roads Authority), 2009);
- *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine* ('the CIEEM Guidelines') published by the Chartered Institute of Ecology and Environmental Management (CIEEM), September 2018-updated in September 2019 (V1.1);

- *Guidelines for Preliminary Ecological Appraisal* published by the Chartered Institute of Ecology and Environmental Management (CIEEM), Second Edition, December 2017.

The report has regard to the following **legislative instruments**:

- The Planning and Development Act 2000 (as amended);
- The Wildlife Act 1976 and the Wildlife (Amendment) Act 2000;
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive");
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("Birds Directive");
- European Communities (Birds and Natural Habitats) Regulations 2011-2015;
- Flora (Protection) Order 2015;
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment;
- Directive 2014/52/EU of the European Parliament and of the Council of 16th April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment; and
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The report has regard to the following Policies and Plans:

- *National Biodiversity Plan 2017 – 2021* (Department of Culture, Heritage and the Gaeltacht, 2017);
- *Planning for Watercourses in the Urban Environment* (Inland Fisheries Ireland, 2020);
- *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (Inland Fisheries Ireland, 2016);
- *All-Ireland Pollinator Plan 2021 – 2025* (National Biodiversity Data Centre, 2021);
- *Adamstown Strategic Development Zone (SDZ), 2014 Planning Scheme, including the Environmental Report;*
- *South Dublin County Development Plan 2016 – 2022, including the associated Statement for Appropriate Assessment.*

2.2 Appraisal methodology

A desk study was undertaken to collate the available information on the local ecological environment. In addition to the resources listed in Section 2.1, information collated from the sources listed below was reviewed:

- Data on rare and protected plant and animal species contained in the following databases:
    - The National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht (www.NPWS.ie);
    - The National Biodiversity Data Centre (NDBC) (www.biodiversityireland.ie);
    - Birdwatch Ireland (www.birdwatchireland.ie);
    - Bat Conservation Ireland (www.batconservationireland.org);
- Recent aerial photography and photographs taken at the site;
- Recent and historic ordnance survey mapping (www.geohive.ie);
- Information on protected areas, as well as watercourses, catchments and water quality in the area available from https://gis.epa.ie/EPAMaps/;
- Information on soils, geology and hydrogeology in the area available from www.gsi.ie ;
- Information on the Status of EU Protected Habitats and Species in Ireland (Article 17 report) (NPWS, August 2019);
- Information on land-use zoning from the online mapping of the Department of the Environment, Community and Local Government www.myplan.ie/en/index.html.

Habitats were classified using *A Guide to Habitats in Ireland* (Fossitt, 2000). Vascular plant nomenclature follows that of the *New Flora of the British Isles* 4th Edition (Stace, 2019).

All hedgerows, tree lines, field edges and watercourses/ditches were searched for any evidence of badgers, such as setts, commuting routes, territorial marking, latrines or feeding signs as well as paw prints, snagged hairs and piles of bedding material. Mammal surveys followed the methodologies contained in the NRA *Guidelines* for the Treatment of Badgers Prior to the Construction of National Road Schemes and the *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes.*

A dedicated appraisal of the hedgerows on the site was undertaken, in accordance with the methodology contained in the Hedgerow Appraisal System (Foulkes *et al.*, 2013). Refer to **Appendix 1**.

Two breeding bird surveys were undertaken on the lands at Adamstown Boulevard. The first was a late season survey, undertaken in August 2021. The second was an early season breeding bird survey, undertaken in March 2022. During these visits the lands were walked slowly over a five hour period. The route walked focused primarily on existing hedgerows, areas of scrub and areas with mature trees. Bird species that were heard or seen were recorded, their position noted, and a breeding status assigned to them. Data from the visits were amalgamated and approximate positions for the birds as seen or heard were plotted on aerial photographs. Approximate populations, breeding status and conservation status were assigned to each species. A species table and distribution map for the lands were prepared. Refer to **Appendix 2**.

Day-time appraisals of potential roost sites and night-time bat activity surveys were undertaken in accordance with best practice guidelines *Bat Mitigation Guidelines for Ireland* (Kelleher and Marnell 2006), *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) *and Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (NRA, 2006). Refer to **Appendix 3.**

As a result of the extensive biodiversity-related surveys and research, and given the habitats and species known to be present on the site and in the wider area, the amount of information gathered to date is sufficient to allow a comprehensive understanding of the potential impacts of any proposed development at the site on biodiversity and related receptors.

As noted in Section 2.1, the detailed site visits were undertaken in 2021 and 2022. A final site survey was undertaken by the author in the preparation of this report on 29 March 2022. The ecological specialists have confirmed that the ecological surveys undertaken are up-to-date and valid, and the reports in the Appendices are appropriately detailed to enable the potential impacts of the proposed development to be appraised.

2.3 Evaluation of ecological features

The methodologies used to determine the value of ecological resources, to characterise impacts of proposed development and to assess the significance of impacts and any residual effects are in accordance with the NRA *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA/TII, 2009). This methodology is consistent with the *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater, Coastal and Marine* ('the CIEEM Guidelines', CIEEM, September 2019).

In accordance with the NRA Guidelines, impact assessment is undertaken of sensitive ecological receptors (Key Ecological Receptors) within the Zone of Influence of the proposed development. According to the NRA Guidelines, the Zone of Influence is the "effect area" over which change resulting from the proposed development is likely to occur and the Key Ecological Receptors are defined as features of sufficient value as to be material in the decision-making process for which potential impacts are likely. In the context of the proposed development at Aderrig, a Key Ecological Receptor is defined as any feature valued as follows:

- International Importance;
- National Importance;
- County Importance;

- Local Importance (Higher Value).

Features of local importance (Lower Value) and features of no ecological value are not considered to be Key Ecological Receptors.

3 Existing environment

3.1 General description of the study area and receiving environment

The proposed development site is located in the Adamstown Boulevard Tile (Development Area 10), in the south western corner of Adamstown Strategic Development Zone (SDZ). It comprises the first phase of proposed development at Adamstown Boulevard, in the western and central parts of the tile.

The Adamstown Boulevard tile has a total area of c.14.6ha, and the proposed development has a total area of approximately 9.76ha. The site is bounded by the Aderrig Tile and Adamstown Way to the north and the future Adamstown Boulevard Phase 2 development to the east. Station Road bounds the site to the south, and farmlands border the west of the site.

Much of the site comprises heavily disturbed land, formerly in agricultural use. There is a car park in the south eastern corner and the south western portion of the proposed development site is overgrown and scrubby. The centre of the proposed development site comprises a playing field (a GAA pitch, in active use). There is a mature tree line and hedgerow along the western boundary. There are two other hedgerows, incorporating ditches, one in the southern part of the site and one in the northern part, both of which are connected to the western boundary. A drainage ditch is present along the southern boundary and to the west of the car park. This is the heavily modified channel of the Lucan Stream/Tobermaclugg Stream, which is linked to the Backstown Stream to the north. This stream eventually flows into the River Liffey near Lucan Village, according to the EPA water features database[1]. It is now heavily vegetated, and periodically contains standing water, with minimal flow.

The location of the proposed development is shown in **Figures 1a and 1b**.

[1] https://gis.epa.ie/EPAMaps/

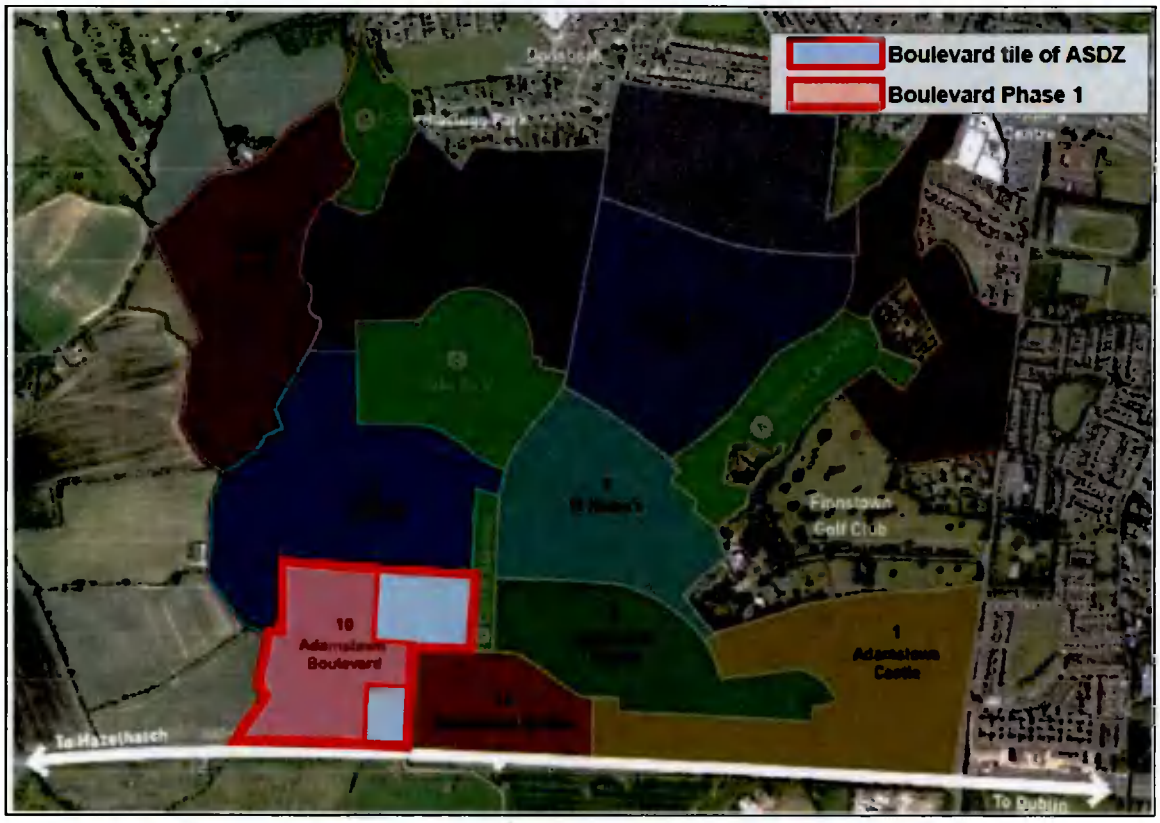

Figure 1a: The location of Adamstown Boulevard (Tile 10) within Adamstown SDZ (*Source: Planning Scheme documentation*).

Figure 1b Adamstown Boulevard – proposed development layout (*Source: Architect's documents*)

3.2 Designated conservation areas

Screening for Appropriate Assessment has been undertaken, and a report (Appropriate Assessment Screening Report) has been prepared in order to address any potential impacts on European sites.

There are 10 European sites potentially located within the zone of influence of the proposed development. These are:

- Rye Water Valley/Carton SAC (site code 001398), c.2.9km to the north west;
- Glenasmole Valley SAC (site code 001209), c.11.3km to the south east;

- Wicklow Mountains SAC (site code 002122), c.13.0km to the south;
- Red Bog, Kildare SAC (site code 000397), c.16.1km to the south;
- Wicklow Mountains SPA (site code 004040), c.16.1km to the south;
- South Dublin Bay and River Tolka Estuary SPA (site code 004024), c.16.5km to the east;
- Poulaphouca Reservoir SPA (site code 004063), c.17.4km to the south;
- South Dublin Bay SAC (site code 000210), c.17.4km to the east;
- North Dublin Bay SAC (site code 000206), c.19.6km to the east;
- North Bull Island SPA (site code 004006), c.19.6km to the east;

Figure 2 indicates the location of European sites in relation to the proposed development site.

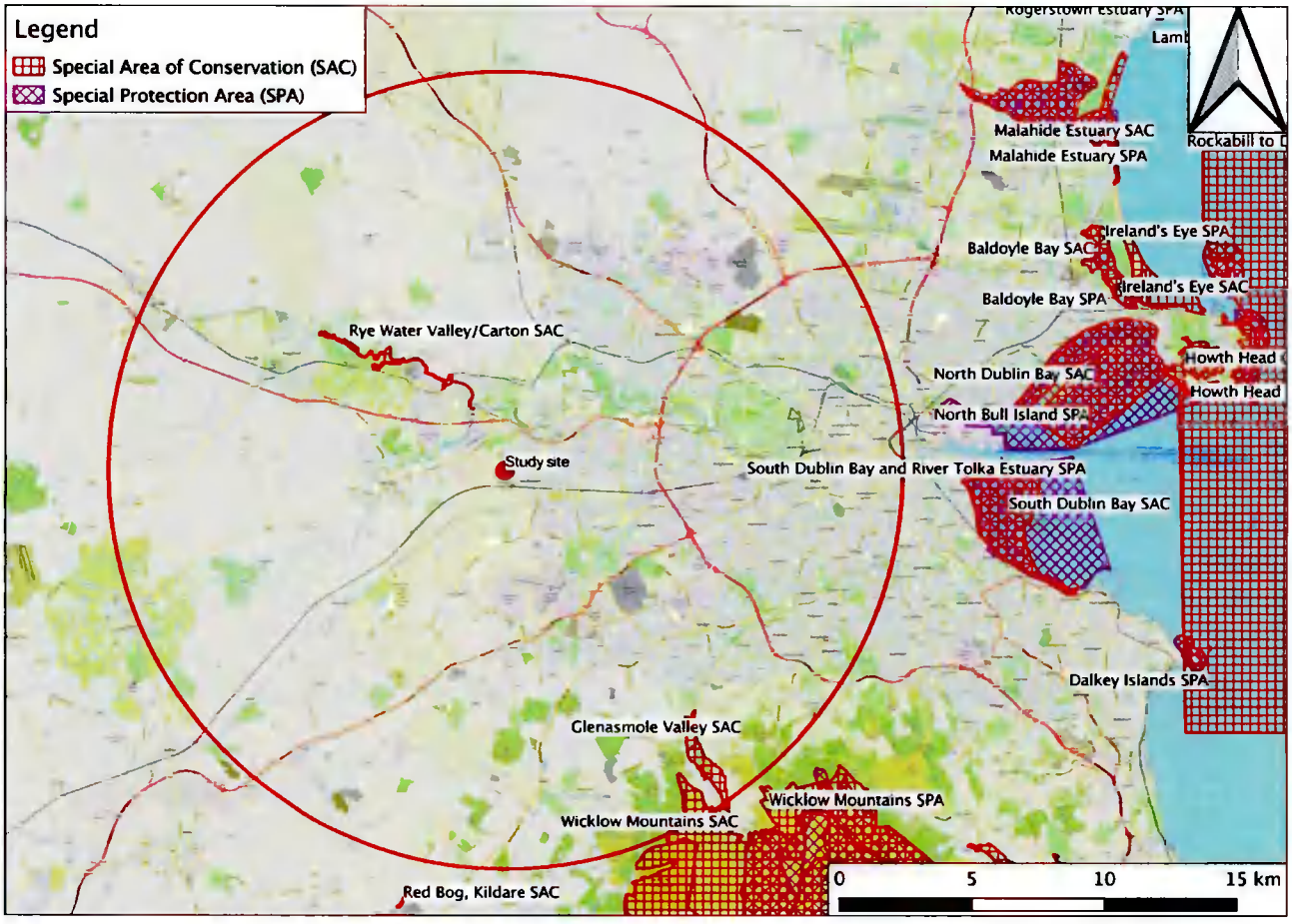

Figure 2: European Sites in relation to the study site, with a red line indicating a 15km radius around the site (Source: OpenStreetMap)

In addition to the European sites, a number of other sites designated for nature conservation are present in the wider area (**Figure 3**). The nearest such sites designated for nature conservation, not otherwise designated as European sites, are Grand Canal proposed Natural Heritage Area (pNHA site code 002104), c.0.9km to the south, Liffey Valley pNHA (site code 000128), c.2.0km to the north and Royal Canal pNHA (site code 002103), c.3.6km to the north.

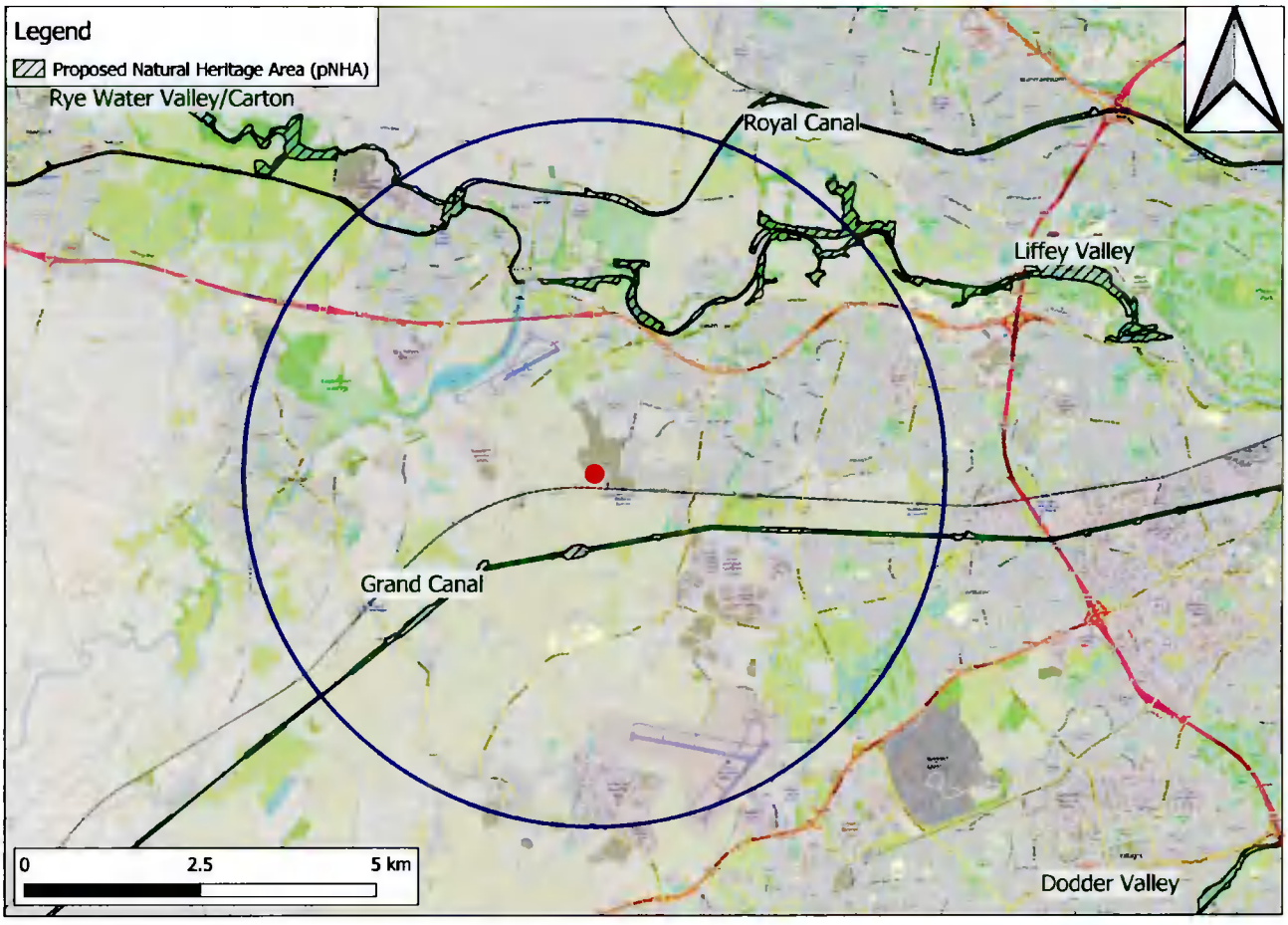

Figure 3: Non-European Sites in relation to the study site, with a blue line indicating a 5km radius around the site (Source: OpenStreetMap)

3.3 Rare and protected species

The proposed development site is not under any wildlife or conservation designation. A population (approximately 45 plants) of a rare and protected species, hairy St. John's wort (*Hypericum hirsutum*) listed in the *Irish Red Data Book 1 – Vascular Plants (Curtis & McGough, 1988)* and the *Flora Protection Order*, 2015 has been recorded to the north east of the site, within the boundary of a proposed park (Airlie Park) which is currently under construction. A second, smaller population, of approximately three plants, was recorded within the development boundary of Aderrig Phase 1, again to the north east of Adamstown Boulevard, within the alignment of a proposed (and permitted) linear park.

No legally protected plant species are known to occur within the site, however there are several mature specimens of the rare black poplar (*Populus nigra* subsp. *betulifolia*) within the site (see Section 3.4.1.1). The mature ash (*Fraxinus excelsior*) trees on the site, particularly in the western boundary tree line, are affected by ash dieback.

3.4 Ecological features

3.4.1 Proposed development site

3.4.1.1 Habitats

The habitats present on the proposed development site are described in this section and are shown in **Figure 4**. The location of the proposed development site is shown in Figure 1.

The site comprises a mix of disturbed and highly modified habitats on the south western edge of the SDZ lands. Although formerly the overall site was made up of agricultural fields with associated hedgerows, parts of the site have been heavily impacted by development operations. The site is bounded to the west by a mature hedgerow and tree line (Fossitt code: **WL1/WL2**). This feature, referred to as H9 and H10 in the hedgerow survey report (**Appendix 1**) and in Figure 4 is classified as a highly significant heritage hedgerow. It contains a high diversity of woody species and is formerly associated with a stream (the Lucan/Tobermaclugg Stream). This hedgerow is partly internal and partly a boundary hedgerow (it marks the western boundary of the proposed development site). It has a northern section which extends into the site, which has been managed and comprises a low hedgerow with one mature oak (*Quercus robur*) tree remaining. The central and southern sections have not been recently managed and are dominated by mature trees (ash and hawthorn (*Crataegus monogyna*)).

The hedgerow is associated with a bank which is over 2m in some places. The southern section, extending into the site, contains a small number of mature examples of the rare black poplar (*Populus nigra*). According to the Arboricultural Assessment prepared by Noel Lane Tree Care Services and submitted separately, the black poplar trees are in fair condition "*but are extremely exposed with fair stability and a moderate lifespan remaining. Several of those black poplar trees were topped and lowered in the past with new coppice growth ongoing*".

Other than the group of black poplar and the very mature ash in the hedgerows, the main woody species are hawthorn and blackthorn (*Prunus spinosa*). Occasional spindle (*Euonymus europaeus*), elder (*Sambucus nigra*), wych elm (*Ulmus glabra*) are present, as well as occasional sycamore (*Acer pseudoplatanus*).

There are tall ruderal species (such as creeping thistle (*Cirsium arvense*)) to the base of the hedge in many locations. Other ground flora include ground ivy (*Glechoma hederacea*), nettle (*Urtica dioica*), Hart's-tongue fern (*Asplenium, scolopendrium*), bramble (*Rubus fruticosus* agg.) and roses (*Rosa* sp). Other species present throughout the site, but mainly associated with the hedgerows, include rosebay willowherb (*Chamaenerion angustifolium*), beaked hawk's-beard (*Crepis vesicaria*), knapweed (*Centaurea nigra*), creeping buttercup (*Ranunculus repens*), dock (*Rumex* spp.), ribwort plantain (*Plantago lanceolata*), cleavers (*Galium aparine*), greater stitchwort (*Stellaria holostea*) red clover (*Trifolium pratense*), white clover (*Trifolium repens*), broad-leaved dock (*Rumex obtusifolius*), common hogweed (*Heracleum sphondylium*), tufted vetch (*Vicia cracca*), dandelion (*Taraxacum* spp.), herb-Robert (*Geranium robertianum*), great willowherb (*Epilobium hirsutum*) and hoary willowherb (*E. parviflorum*). Other species occasionally present in the site include scarlet pimpernel (*Anagallis arvensis*), self-heal (*Prunella vulgaris*) and cut-leaved crane's-bill (*Geranium dissectum*). These species are typical of such a disturbed site.

The south western part of the site contains another area of disturbed ground that is dominated by willow (*Salix fragilis* and *S. cinerea*) scrub (**WS1**). A drainage ditch (**FW4**), containing shallow standing water runs along the southern site boundary. A second section of open ditch is also present in the southern part of the site. These ditches are very highly modified and are notably species-poor, with occasional patches of reeds (*Typha latifolia*) and some yellow flag iris (*Iris pseudacorus)* and fool's watercress (*Apium nodiflorum*). In addition to these open ditches, the former line of the Lucan Stream follows hedgerow H9. This is now effectively a dry ditch.

Much of the eastern and northern part of the site comprises mounded soil and other construction materials, as well as scrub and bare and recolonising ground (**WS1/ED2/ED3**).

An abandoned agricultural field (**GS1/WS1**) is located in the north western part of the site. In the centre of the site there is a playing field (**GA2**), managed and currently in use. A strip of unmanaged grassland is located between the playing field and the western boundary hedgerow.

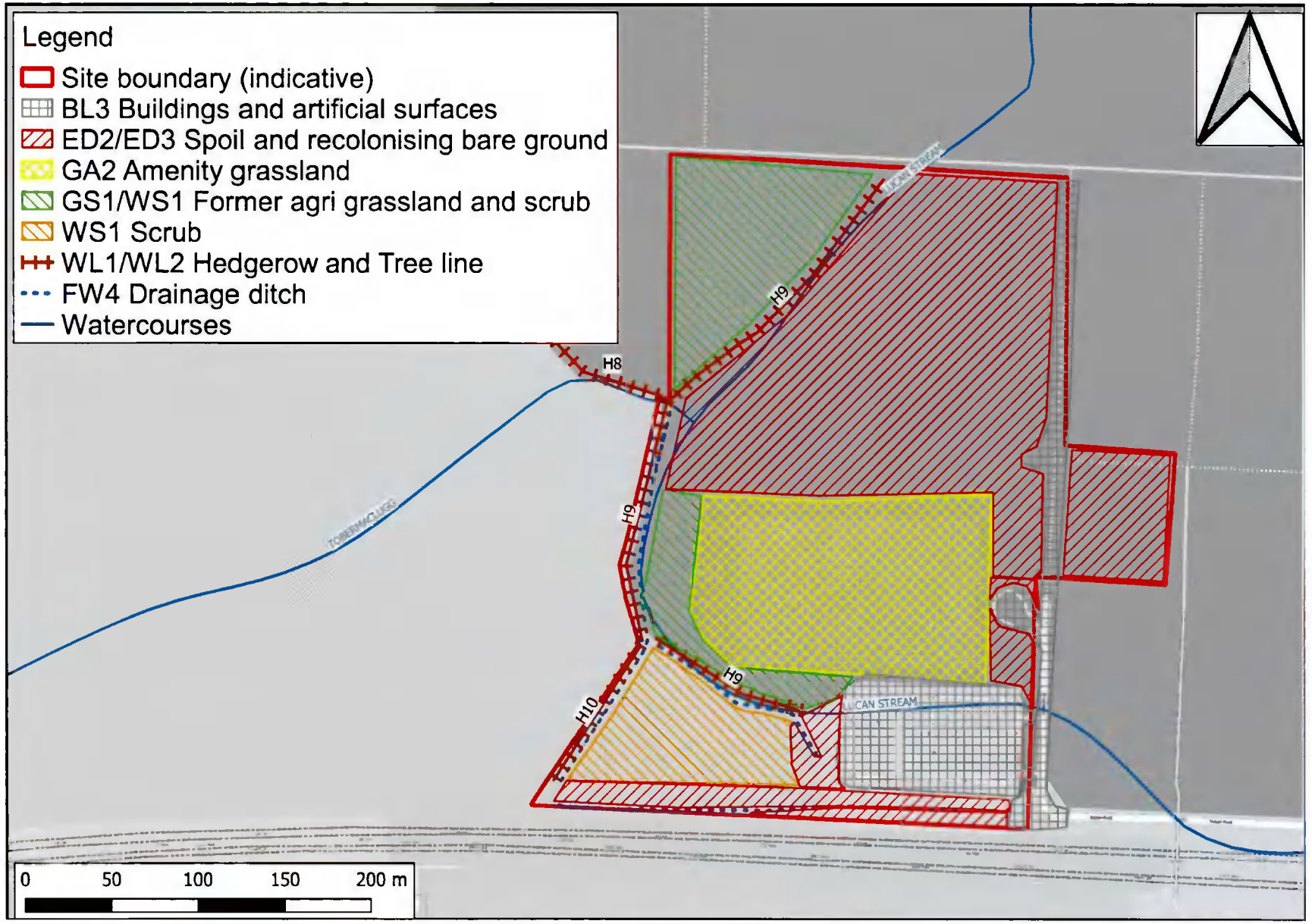

Figure 4: Habitat map for the proposed development site. For the project red line please refer to the reports that accompany the application.

3.4.1.2 Fauna

As set out in detail in the bat survey report (Appendix 3), No bat roosts were identified within the site during the surveys undertaken in September 2021. There are a number of large mature trees including the poplar and ash with moderate potential for roosting bats. No bats exited from or returned to any tree within the site and bat activity was absent prior to sunrise during the surveys undertaken.

Overall, bat activity was moderate within the site during this assessment and was most concentrated around good vegetation cover. The most widespread species was common pipistrelle. This species was noted in almost all of the survey area. The second most widespread species and the most frequently encountered species was the soprano pipistrelle. The least commonly encountered species of the three species present within the site was Leisler's bat. This species was recorded only once at the western perimeter of the site.

In surveys undertaken in neighbouring areas between 2019 and 2021 by the surveyors, the above three species have been recorded with the additional Myotis species; Natterer's bat, which was recorded along hedgerow northeast of the site (900 metres away at the nearest point). From Bat Conservation Ireland data, brown long-eared bats have been recorded within 1 km of the site.

Despite suitable breeding and foraging habitat, no evidence of badger, Irish hare or other protected large mammals was recorded in the site. Foxes and rabbits, neither of which species is protected, were both frequently observed.

As confirmed in the bird survey report (Appendix 2), during the surveys undertaken in August 2021 and March 2022 a total of 23 common bird species of Ireland were recorded on the lands, none of which were confirmed as breeding. Two species of highest conservation concern (red listed) were recorded (meadow pipit and yellowhammer), which possibly bred, or will breed on, or very close to the lands. Three species of medium conservation concern were recorded (skylark. Starling and linnet) all of which possibly bred or will breed on or close to the lands. The remaining 18 species recorded were of least conservation concern, none of which were confirmed to breed on the site. Most of the green listed species recorded were seen in flight or foraging only and most probably were not breeding on the site at the time of the 2021 visit but some possibly did earlier in the year. Many of the green listed species were heard singing or were seen engaging in other breeding behaviour in 2022 so many may breed later in 2022. The green listed species were buzzard, pheasant, woodpigeon, pied wagtail, wren, dunnocks, robin, stonechat, blackbird, whitethroat, great tit, blue tit, long tailed tit, hooded crow, raven, chaffinch, goldfinch and reed bunting.

Common (viviparous) lizard, common frog and smooth newt were not recorded during the site walkover surveys.

4 Overall ecological valuation of the site

4.1 Proposed development site

The proposed development site is not under any wildlife or conservation designation. As noted in Section 3.3 and described in Section 3.4.1.1 a rare plant, hairy St. John's wort, has been recorded in two locations nearby, but not within the Adamstown Boulevard tile.

No evidence of badgers or other protected large mammals was recorded on the site during any of the surveys undertaken on the site. There are no buildings within the proposed development site. A number of the trees within the site have moderate bat roost potential. Bat activity was moderate during the survey and was mostly concentrated around areas with good vegetation cover. However no bats exited or returned to any trees within the site during the bat survey and bat activity was absent prior to sunrise. The vegetation on the site is of local ecological value for breeding birds.

The site is unsuitable for use by species linked to the European sites of Dublin Bay, such as light-bellied Brent geese, due to the types of habitats present.

No evidence of any other protected animal species such as amphibians (smooth newt or common frog), reptiles (common lizard) or hedgehogs, was recorded during the surveys carried out at the site.

No evidence of any other protected animal species such as amphibians (smooth newt or common frog), reptiles (common lizard) or hedgehogs, was recorded during the surveys carried out.

Overall, the site proposed for development, with the exception of the hedgerows which are of local importance (higher value) the site is of local importance (lower value) in accordance with the ecological resource valuations presented in the National Roads Authority/Transport Infrastructure Ireland *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA/TII, 2009 (Rev. 2)). The hedgerows within the site have not been scheduled for retention in the SDZ Planning Scheme documentation.

5 Potential impacts of the proposed development

5.1 Description of the proposed development

Each element of the development under appraisal is required to comply with the Approved Adamstown SDZ Planning Scheme (amended in 2014). This contains a number of Strategic Environmental Objectives in relation to biodiversity, in order to sustain and enhance ecological habitats, avoid significant adverse impacts and to sustain and enhance key ecological networks. In addition, the South Dublin County Development Plan 2016-2022 has a series of objectives intended to protect and enhance the natural environment. For example the CDP contains significant objectives to protect and enhance green infrastructure within the county. It also includes policies for to protect water bodies and watercourses, including rivers, streams, associated undeveloped riparian strips, wetlands and natural floodplains, within the County from inappropriate development.

The CDP and Planning Scheme aims have been achieved in so far as is practicable within the Adamstown Boulevard development.

Phase 1 of the Adamstown Boulevard development seeks Permission for 257no. terraced and semi-detached housing units ranging from 2 to 3-storeys in height; open space is proposed including a Pocket Park, and also a Linear Park which stretches from Adamstown Way to Station Road; all associated ancillary site development and landscape works, including internal roads and services, ESB Sub-Stations, landscaping and boundary treatment works. Outline Permission is also being sought for 166no. apartment units in a block ranging from 6 to 9-storeys in height which will deliver a range of unit types. All on a site of c.9.76Ha (including lands for Outline Permission). The lands subject of the application for Outline Permission are clearly identified on the Architects Site Layout Plans.

The development is accessed from roads already approved or under construction. The existing Adamstown Way (permitted under Reg Ref SDZ06A/5) bounds the site to the north and 3 № access points are proposed onto this road. The Station Road (permitted under Reg Ref. SDZ04A/1) bounds the site to the south and 3 № access points are proposed onto this road. 1 № access point to the east of the site is proposed for future use into Phase 2 of the Boulevard and 1 № access point to the west of the site for the potential future development of the open lands.

The site is served by existing infrastructure constructed under the ASDZ Strategic Drainage Scheme and the Overall Adamstown Watermain Network Scheme. The existing infrastructure includes wastewater drainage, stormwater drainage and watermains built within the existing roads around the subject site.

The proposed development will provide for roads, drainage (wastewater and stormwater), water supply and utilities.

5.2 Designated conservation areas –Appropriate Assessment

As previously stated, the potential for any impacts on these sites under the EU Habitats and Birds Directives was considered and a Screening report for Appropriate Assessment was prepared. Full results of that study are

presented in a separate report. The following paragraphs comprise a summary of the conclusions outlined in that report:

> *In view of best scientific knowledge this report concludes that the proposed development at Adamstown Boulevard, individually or in combination with another plan or project, will not have a significant effect on any European sites. This assessment was reached without considering or taking into account mitigation measures or measures intended to avoid or reduce any impact on European sites.*
>
> *It is considered that this report provides sufficient relevant information to allow the Competent Authority (South Dublin County Council) to carry out an AA Screening, and reach a determination that the proposed development will not have any likely significant effects on European sites under Article 6 of the Habitats Directive in light of their conservation objectives.*

5.3 Habitat loss and disturbance within the site

In line with the Adamstown Planning Scheme, there is an expectation/requirement that the lands in question transition from a rural character to an urban one and that this will have consequences for existing habitats.

The development will involve the removal of the existing fields, which although disturbed by historical construction-related activities across much of the site, include pockets of scrub and unmanaged grassland and are reasonably diverse. This loss is considered to be a probable permanent impact, significant at the site level. The loss of the existing habitats, in the southern part of the site, will also reduce the feeding opportunities for bats and birds.

The proposed development will result in the loss of the parts of Hedge H9 that extend into the site. This is a Highly Significant (Heritage) hedgerow and this partial loss will be permanent and significant at the local scale. The hedge includes a number of mature black poplar trees which will also be removed as a result of the proposed development. As noted in the Tree Survey that accompanies the planning application, the mature black poplars are ***"in fair condition but are extremely exposed with fair stability and a moderate lifespan remaining. Several of those black poplar trees were topped and lowered in the past with new coppice growth ongoing"***. **Although it will not be possible to retain the trees within the development, the hedge bank in which these trees are located, and which contains numerous black poplar saplings as well as other hedgerow species, is to be carefully translocated as part of the proposed development works (refer to Section 6.2).**

Despite the loss of the internal sections of this hedge it is to be noted that the western boundary hedge is to be retained and enhanced – the habitat connectivity along the western boundary of the site is to be retained as part of the proposed development.

The mature oak tree located in the northern part of the hedgerow that extends into the site is to be retained as part of a new pocket park.

The existing open drainage ditches will be removed, however the proposed development incorporates a linear park which is designed for biodiversity, and will include a new water feature that will connect to the surface water channel to the north (being delivered as part of the permitted Aderrig Phase 1 and 2 developments).

The long-term landscaping design, which is focussed on biodiversity enhancement, will ensure that the impacts on biodiversity are reduced over time (refer to the accompanying landscape design, prepared by Niall Montgomery and Partners Ltd (NMP)).

It is not expected that there will be any impacts on badgers and other large mammals, amphibians or reptiles, as a result of the proposed development. In addition there will be no loss of habitat utilised by overwintering birds, such as lapwing or curlew. The removal of the internal sections of hedgerow H9 and the removal of the scrub and other habitats associated with the disturbed ground will have permanent impacts, at the local scale, on breeding birds. Illumination also has the potential to result in impacts on local bat populations.

There will be no transfer of invasive plant material during the construction phase that could potentially lead to species such as giant hogweed or Japanese knotweed becoming established in the area. The construction methodology will ensure that no invasive species are introduced, either deliberately or inadvertently, to the site.

5.4 Water

All **construction activities** pose a potential risk to watercourses as surface water arising at a site may contain contaminants. The main contaminants arising from construction activities may include suspended solids, hydrocarbons and concrete/cement products. If not properly managed, such pollutants could pose a temporary risk to surface water quality in local watercourses, and in the surface water drainage infrastructure, during construction.

Although there are no significant watercourses on or in the vicinity of the site, the (former) Lucan Stream and constructed drainage ditches that drain the site ultimately drain to the Liffey and the construction of the proposed development at Adamstown Boulevard could have impacts on water quality, via run-off to the wider surface water network, including the sewer network and via infiltration to the ground. However in the event that contaminated water should enter any drainage ditch, watercourse or sewer during the construction (or operation) of the proposed development, there is the theoretical potential for negative effects on water quality.

According to the Engineering Services Report (prepared by Waterman Moylan Consulting Engineers) that accompanies the application, the site is located in the Tobermaclugg Tributary stormwater catchment area of the ASDZ lands. According to the ASDZ Planning Scheme 2014 Amendment the subject site's catchment drains to a large stormwater outfall (2.4mø stormwater pipe) and 5000m^3 attenuation pond to the north-east of Lucan Golf Course on the Backstown/Tobermaclugg Stream.

All surface water sewers will ultimately drain towards the Tobermaclugg stream (north-west) past the Tobermaclugg Pump Station. The Tobermaclugg Stream has been mostly culverted (leaving 100 ℓ/s flow in the stream for Tobermaclugg Park water feature) by the constructed 2100mm/2400mm ø surface water pipe through the Lucan Golf Course under previous permissions along with an attenuation pond to the northeast of the Golf Course south of the Millstream Road/Dodsborough Road junction before discharging to the River Liffey via an existing culvert under the N4.

The existing stormwater sewers and attenuation area serving the Phase 1 and Phase 2 Adamstown Boulevard development have been constructed under the ASDZ Strategic Drainage Scheme. The network has been designed and constructed to accommodate the subject development.

Once operational it is proposed to discharge the surface water from the proposed development, via a series of SuDS features and downstream defender manholes, into the existing downstream stormwater system, as prescribed in the ASDZ scheme. The methodology involved in developing a Storm Water Management Plan for the subject site is based on recommendations in the Greater Dublin Strategic Drainage Study (GDSDS) and in the SuDS Manual and the recently published Sustainable Drainage Explanatory Design & Evaluation Guide (2022). It is proposed to incorporate a Storm Water Management Plan though the use of various SuDS techniques.

As part of the planning application for this development a full **flood risk assessment** has been prepared by Waterman Moylan Consulting Engineers) and is submitted under a separate cover. The flood risk assessment considers tidal, fluvial, pluvial, groundwater, and human/mechanical errors as flooding sources and noted that the residual risk of each were rated as low or extremely low (not applicable in the case of tidal flooding).

6 Mitigation measures

6.1 Designated conservation areas

No designated conservation areas will be impacted in any way by the proposed development and no specific mitigation measures are required, other than the standard measures required as set out in this report, in particular in relation to water quality.

Full details in relation to European sites are provided in the accompanying Appropriate Assessment Screening Report.

6.2 Habitats

In line with the Adamstown Planning Scheme, there is an expectation/requirement that the lands in question transition from a rural character to an urban one and that this will have consequences for existing habitats.

All site clearance and landscaping works will comply with current legislative requirements and best practice. In particular, where trees and hedgerows are to be retained they will be treated in accordance with British Standard BS5837:2012 Trees *in Relation to Design, Demolition and Construction' – Recommendations*, with protective fencing being installed around all trees and hedgerows to be retained, prior to commencement of development. This refers primarily to hedgerows and tree lines along the western site boundary.

Where possible, all vegetation clearance will take place outside the bird nesting season (avoiding the period 1st March to 31st August).

Construction works will be undertaken in strict accordance with the requirements of the Construction Environmental Management Plan (prepared by Quintain and submitted separately), and in line with the requirements of Inland Fisheries Ireland, who will be consulted prior to the commencement of works.

As it is proposed to effectively change the site from former agricultural/disturbed ground to an urban character, it is not possible to mitigate all of the potential impacts on local ecological receptors. However, the planting proposed for the development will, wherever possible, comprise an appropriate mixture of native trees and shrubs, preferably of local provenance. The planting will also incorporate a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the All-Ireland Pollinator Plan 2021-2025. Refer to the accompanying landscape design reports and drawings, prepared NMP Ltd, which includes proposals to strengthen the western site boundary, create new hedgerow planting along the southern boundary and maximise the ecological value of the north-south linear park within the proposed development.

A key element of the landscape design and ecological mitigation is the enhancement of the western boundary hedgerow which is to be retained and protected. It will not be possible to retain the mature black poplar trees that are located in the site. As noted in Section 3.4.1.1 and in the Tree Survey Report that accompanies the planning application these trees are in fair condition. However, although it will not be possible to retain the trees, the section of the existing hedge where the mature black poplar are currently located and which contains black poplar saplings as well as other hedgerow ground flora will be translocated to the western site boundary (outside the red line boundary of the proposed development – see Figure 5 (taken from the Landscape Design Statement (NMP)). The methodology for translocating the existing hedge is as follows:

Preparatory works:

- The existing woody growth, including the mature trees will be cut back, outside the bird breeding season (1 March to 31 August);
- Soil and turves from the base of the bank will be cut away on the side facing the direction of movement (most likely the northern side, but to be determined on site prior to the commencement of the works). Turves from the southern side of the hedge, down the side of the ditch, will also be removed and stored. These turves will be set aside for use in finishing the translocated hedge;
- The ground on the receiving site (western boundary) will be prepared by removing turf and creating a shallow, level receiving trench, This work will be done carefully so as not to disturb the root protection area of the retained hedge trees.

Translocation technique:

- It will not be possible to drag or push the hedgerow to its new location, therefore it will need to be lifted and rebuilt;
- Working from east to west, the hedge will be moved in sections as follows:
    - Using an appropriately-sized tracked excavator and bucket the top layer of bank to the depth of the main fibrous root-ball will be removed and carefully placed to the side;
    - The remainder of the bank will then be removed to ground level, preferably as two bucket loads. This material will be transferred across to the receiving trench, ensuring that its positioning replicates the original structure of the bank;
    - The top section of the bank will then be placed onto the newly created base. This work will be continued in sequence and the newly constructed bank will be reshaped as appropriate;
    - On completion, the cut turves from the donor site will be used to face up the bank where needed.

There are further proposals for additional compensatory measures relating to the partial loss of hedgerow (H9) detailed on the landscape architects proposals.

Figure 5: Hedgerow mitigation plan (extract – see Landscape Design Statement for full details).

As set out in the Landscape Design Statement, a total of 2,930m^2 of internal hedgerows will be removed in order to facilitate the development of the site in accordance with the requirements of the Adamstown SDZ Planning Scheme. This is marked in red in Figure 5. A total of 825m^2 of the existing hedgerow (marked in green), within the red line, will be retained (and protected during construction). In addition to this approximately 2,170m^2 of new hedgerow planting will be provided (marked in purple on Figure 5) inside the red line of the proposed development. This planting is in addition to the planting proposed for the linear park on the eastern side of the site, which also includes the planting of high-biodiversity pocket forests. Finally, the western boundary of the site, which is to be retained intact, is to be augmented with additional hedgerow planting (approximately 1,200m^2, as shown in orange on Figure 5)

The landscaping and enhancement/mitigation planting will, over time, provide replacement habitat of benefit to the bats and birds that will continue to use the site and its boundaries.

All planting plans and landscaping proposals will ensure that no invasive species are introduced, either deliberately or inadvertently, to the site. This includes invasive plants that are not listed on the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011-2015*, such as *Crocosmia* spp.

6.3 Fauna

Construction works will be undertaken in strict accordance with the requirements of the Construction Environmental Management Plan (prepared by Quintain and submitted separately).

6.3.1 Bats – recommendations

No bat roosts have been recorded at Adamstown Boulevard and there is no evidence that trees within the site are in use as bat roosts from the survey of September 2021. It will not be necessary to apply for a derogation licence under Regulation 54 or 55 of the European Communities (Birds and Natural Habitats) Regulations 2011-2015).

Nevertheless, bats are mobile creatures and all mature trees shall be checked by a bat specialist prior to felling or major surgery. If the felling occurs in winter, all suitable cavities offering roost potential to bats shall be checked by a bat specialist by way of access from a hoist or other height access means. Felling in autumn is preferable as it would avoid nesting birds and hibernating bats. A bat detector assessment will be carried out if felling takes place in the period September to early October. Any ivy-covered trees which require felling should be left to lie for 24 hours after cutting to allow any bats beneath the cover to escape. Trees with potential for bat roosting i.e. those showing cavities, should be felled in the presence of a bat specialist in case bats are present. If found, such animals should be safely retained in an escape-proof container until nightfall then released onsite.

One new bat box – a pole-mounted "rocket" box shall be installed in the southern area of the site with sufficient clearance to allow bats to drop from the box and enter it without entering on to the railway line. This should be placed on a post at least 3 metres high, with a clear drop below (as bats need to drop to start their flight).

All new public lighting (see the accompanying Public Lighting report and drawings, prepared by Sabre Electrical Services Ltd and submitted as part of the planning application) for the proposed development will be constructed in line with the recommendations of the Bat Conservation Trust (Lighting Guidelines, 2018).

The lighting design has been reviewed to consider the potential impact on foraging and commuting bats. Prior to installation, the final lighting design for the proposed development will be reviewed to ensure that, while taking account of all necessary safety and security requirements, it minimises the potential for impacts on the local bat population, particularly along the eastern edge of the site.

6.3.2 Bats – lighting

All new public lighting (see Public Lighting report and drawings, prepared by Sabre Electrical Services Ltd and submitted as part of the planning application) for the proposed development has been designed and will be

constructed in line with the recommendations of Bat Conservation Ireland (2010), taking account of the following lighting design characteristics:

- The minimum level of appropriate/required lighting level will be provided within the developed/residential areas;
- Light standards will be fitted with low intensity, horizontal cut-off LED light fittings employing a narrow directional light or cowled light. This will avoid the effect of light spill arising;
- Light standards and associated lighting will where design requirements permit, be directed away from areas of open space, in particular the proposed linear valley;
- No floodlighting will be used in the development.

Given the level of bat activity recorded on the site during the bat surveys undertaken in 2019 and 2021 it is considered that the lighting design is appropriate. The lighting design has been reviewed to consider the potential impact on roosting, foraging and commuting bats, and it is concluded that the lighting as designed will have no significant impacts on bat populations in the area.

As noted in the bat survey report, there will be a loss of vegetation within the site and an increase in lighting in areas where lighting is essential for traffic movement. This will lead to a slight to negligible negative impact upon bats.

6.4 Water

6.4.1 Surface water

Construction works will be undertaken in strict accordance with the requirements of the Construction Environmental Management Plan (prepared by Quintain and submitted separately) and in line with the requirements of Inland Fisheries Ireland.

The following Best Practice measures will be adopted during construction:

- The newly constructed storm water systems will be protected from ingress of silt, debris and deleterious material during all phases of construction;
- Appropriately designed silt prevention measures will be installed where necessary and will be regularly maintained and retained in situ for the duration of the construction phase, until such time as all proposed permanent surface water protection measures are installed and operational;
- Discharge Licences – It will not be permitted to discharge into any newly constructed storm water systems or watercourse without adhering to the conditions of the discharge licence and agreeing the same with the Site Manager and Local Authority Area Engineer;
- Discharge of surface water from the construction site will be via silt/sediment trap and/or temporary hydrocarbon interceptors and will be monitored to meet any requirements set by the Local Authority/Environmental Protection Agency;
- No discharge will occur where there is a risk of cement or residue in the discharge;
- Concrete Washout – The washing out of concrete trucks on site will not be permitted as they are a potential source of high alkalinity in watercourses. Consequently it is a requirement that all concrete truck washout takes place back in the ready-mix depot;
- Control of spoil and other materials to prevent spillage, and through appropriate handling and selection of spoil/material storage locations;

- Careful siting and bunding of fuel storage facilities and any areas used for the storage of potentially hazardous materials;

The strategy for controlling and mitigating potential adverse environmental during construction will also include the following, as appropriate:

- If required, sampling and testing of excavated spoil in order to assess the suitability of materials for reuse on site;
- Dust suppression from soils by the regular use of water sprays during any dry conditions, sheeting of haulage vehicle loads;
- Should invasive weeds be found, they will be treated as controlled waste and disposed of off- site at a landfill site that is licensed to receive such material;
- The storage of hazardous liquids (fuels and chemicals) will be avoided in so far as is possible. The handling and storage of any potentially hazardous liquids on site will be controlled and best practice guidance such as that published by the EPA, will be followed. Storage tank/container facilities will be appropriately bunded within designated compound areas and sited as far as possible from any watercourse or surface drain;
- If hazardous liquids escape during the works, the bunds and other protective measures will contain the spillage until remedial action, which will be taken as soon as possible.

The implementation and effectiveness of these standard best-practice mitigation measures will be inspected and recorded regularly during the construction period and where deficiencies or faults are identified they will be immediately remedied.

6.4.2 Foul water

All **wastewater** from the proposed development will be treated at the Irish Water Wastewater Treatment Plant (WwTP) at Ringsend prior to discharge to Dublin Bay.

The Ringsend WwTP operates under licence from the EPA (Licence no. D0034-01) and received planning permission (ABP Reg. Ref.: 301798) in 2019 for upgrade works, which are expected to be completed within five years. This will increase the plant capacity from 1.65m PE (population equivalent) to 2.4m PE. Regardless of the status of the WwTP upgrade works, the peak discharge from the proposed development, as described in the accompanying Engineering Assessment Report (Peak Foul Flow = 12.9l/s) is not significant in the context of the existing capacity available at Ringsend. Though the WwTP is currently over capacity (the plant is currently accommodating 1.9m PE), recent water quality assessment undertaken in Dublin Bay (published by the EPA and available on the EPA online mapping database[2] confirms that Dublin Bay is classified as "*unpolluted*" and there is no evidence that the over-capacity issues at Ringsend are affecting the conservation objectives of the European sites in Dublin Bay.

According to the Engineering Services Report (prepared by Waterman Moylan Consulting Engineers) a design acceptance review will be undertaken with Irish Water after the planning application is made to SDCC, which will then be followed with a Connection Application to Irish Water after planning has been granted.

In any event no mitigation in relation to foul water infrastructure is required in the context of biodiversity.

6.5 Monitoring

A suitably experienced ecologist will be appointed for the duration of the construction phase and regular monitoring of all construction works will take place to ensure the correct and full implementation of the mitigation measures set out in this report.

[2] https://gis.epa.ie/EPAMaps/default

- The project ecologist will monitor all site clearance activities in order to ensure compliance with legislative requirements and the commitments set out in the planning application documentation. This includes the monitoring of the installation of protective measures, to avoid breeding bird mortality and to ensure site lighting does not disturb bats along the perimeter of the site;
- All works related to the translocation of the hedgerow will be overseen and directed by the project ecologist;
- The project ecologist will maintain contact with the following organisations should this be required:
    - South Dublin County Council (Heritage Officer);
    - National Parks and Wildlife Service (Wildlife Ranger);
- All monitoring tasks will be recorded and logged for inspection by the site manager.

7 Conclusion

The proposed Adamstown Boulevard development will result in the removal of the internal sections of the western boundary hedge, as well as areas of scrub, grassland and heavily disturbed ground. In line with the requirements of the Adamstown SDZ planning scheme, a new residential development will be delivered. Associated with the development will be new public open space and landscaped areas, including areas of ecologically sensitive planting and bat boxes and the translocation of the soil containing black poplar seedlings and saplings. With the implementation of the required mitigation, including the translocation of the hedgerow and the significant additional hedgerow planting, there will be no long-term residual impact on any ecological receptors, either within or in the vicinity of the site, or associated with any site designated for nature conservation as a result of the proposed development.

Appendix 1 Hedgerow survey report

ADERRIG, ADAMSTOWN SDZ
HEDGEROW SURVEY AND ASSESSMENT

March 2022

Report produced by Denyer Ecology for:
Brady Shipman Martin

CONTENTS

1 INTRODUCTION

1.1 Background

Denyer Ecology was commissioned by Brady Shipman Martin to undertake a detailed survey of selected hedgerows at Lands at Adamstown Boulevard, Lucan, South Dublin, in 2021 to inform development planning at the site.

1.2 Aim

The aim of the survey was to assess the ecological value/ significance of hedgerows on the site and their condition.

1.3 Site

The site is located within the Adamstown SDZ Planning Scheme Area. The site boundary is shown on Figure 1.1. The site comprises former agricultural land with hedgerows along old field boundaries. The site is no longer used for agriculture and the fields are abandoned and overgrown. There was some recent disturbance from vegetation clearance to provide access to the hedgerows. The eastern part of the site has had some hedgerows removed and land clearance related to construction.

Figure 1.1. Survey area
RGB Aerial Photography - © Bluesky Geospatial Limited

2 METHODOLOGY

2.1 Desktop data

The following resources were consulted:

- Ordnance Survey Ireland (OSI) mapping (accessed: http://map.geohive.ie/mapviewer.html)
- Aerial imagery (Bing maps)
- EPA data on watercourses (downloaded shapefiles)
- Flora of County Dublin (Doogue *et. al.*, 1998).

2.2 Hedgerow assessment

The hedgerow survey and appraisal methodologies were based on the latest hedgerow survey guidelines: *Hedgerow Appraisal System - Best Practice Guidance on Hedgerow Survey, Data Collation and Appraisal* (Foulkes et al., 2013). The survey focused on rating the significance of the hedgerows currently present on site.

The survey comprised walking both sides of each hedgerow and recording the hedgerow flora species present and other hedgerow features. In addition, an attempt was made to survey the centre of the hedge to determine whether there is a bank, ditch or watercourse associated with the hedgerow and to survey the ground flora. This was sometimes only possible in one or two locations along the hedgerow, as the hedgerows are very mature and dense. Information was recorded from both the whole hedgerow and a 30m representative survey section. The locations of the surveyed hedgerows and 30m survey sections are shown on Figure 2.1

The following information was recorded and used to assess the significance of the hedgerow:

- General description of hedgerow including dominant woody species.
- Favourable tree, shrub and woody climber species (based on list in Foulkes et al., 2013). Recorded from hedgerow length and 30m survey section.
- Unfavourable tree, shrub and woody climber species (based on list in Foulkes et al., 2013). Recorded from hedgerow length and 30m survey section.
- Herbaceous ground flora (based on list in Foulkes et al., 2013). Recorded from hedgerow length and 30m survey section.
- Additional woodland/ hedgerow flora species if not included in the list by Foulkes et al. (2013)
- GPS position of start and finish of 30m survey section.
- Historical information (from desktop data).
- Species diversity (favourable woody species, ground flora and ferns and allies).
- Presence and height of wall or bank.
- Presence of wet or dry ditch or watercourse.
- Other features of ecological importance, such as Badger Setts.
- Habitat connectivity.
- Presence of mature trees.

In addition, the following information was used to assess the condition of the hedgerow:

- Height
- Width
- Profile
- Basal density
- % gaps and gap size
- Degradation of banks and walls
- % cover of negative indicators such as Ivy *Hedera hibernica*, unfavourable woody species, ruderal species indicative of high nutrients (e.g. *Urtica dioica*)
- Habitat at margins of hedgerow (e.g. grassy or ploughed/ disturbed)

2.3 Hedgerow significance

Using the guidance of Foulkes et al. (2013), the significance of each hedgerow is assessed by ranking the hedgerow features in five categories:

- Historical Significance
- Species Diversity Significance
- Structure, Construction and Associated Features
- Habitat Connectivity Significance
- Landscape Significance

Each category is scored on a scale of 0-4 (with 0 being the lowest). The score for each hedgerow is shown in Appendix B. The hedgerows have been ranked using the following criteria:

- Highly significant (Heritage Hedgerow): scores 4 in any category; cumulative score of 16 or greater over the five categories. These hedges should be considered as high priority in terms of retention and management action (Foulkes et al., 2013).
- Moderately significant: total score of 10-15 (may still be of value depending on the context).
- Low significance: total score less than 10 (may still be of value depending on the context).

2.4 Hedgerow condition

The hedge structure recorded criteria (e.g. height, width, cross sectional profile, quantity and age profile of trees) is used to assess hedgerow condition (Foulkes et al., 2013). Important factors include the size and percentage of gaps, density of basal growth, damage to banks and walls and overall growth form. Hedgerows are ranked in three categories representing structure, continuity and any other negative Indicators. The maximum possible condition score is 24. The higher the recorded score, the more favourable the condition (Foulkes et al., 2013). However, a score of 0 in any category represents a hedgerow in unfavourable condition.

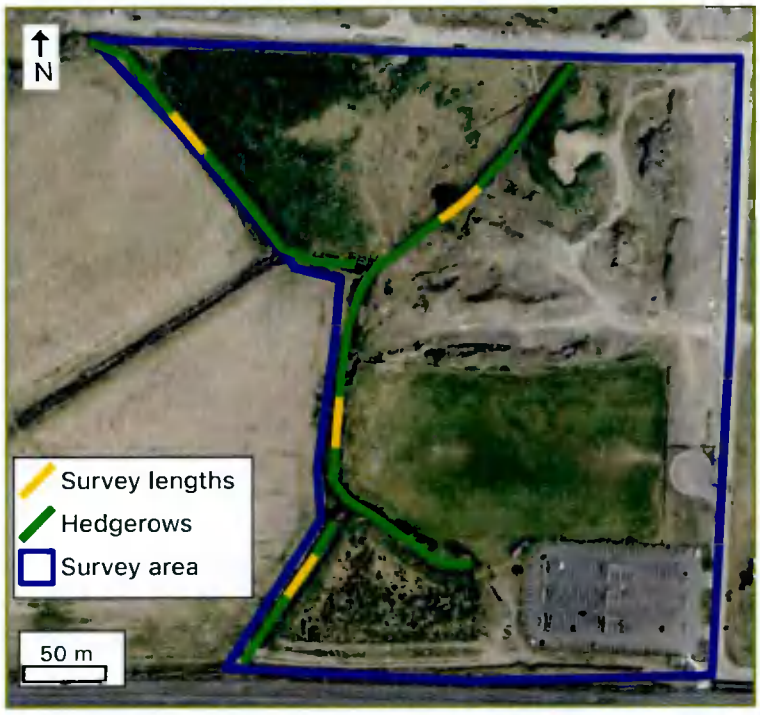

Figure 2.1. Surveyed hedgerows and location of 30m survey sections
RGB Aerial Photography - © Bluesky Geospatial Limited

2.5 Nomenclature

Vascular plant nomenclature will follow that of the *New Flora of the British Isles*. 4th Edition (Stace, 2019). The bryophyte nomenclature adopted by Blockeel et al. (2021) is used. Habitats were identified and classified using the *Guide to Habitats in Ireland* (Fossitt, 2000).

3 HEDGEROW EVALUATION

3.1 Hedgerow survey and evaluation results

Full details of the detailed hedgerow survey and 30m survey sections are shown in Appendix A. Key features of each hedgerow are summarised in Table 3.1 and the 'Significance' ranking of each hedgerow is shown on Figure 3.1. All three hedgerows rank as 'Highly significant' Heritage Hedgerows. Black Poplar *Populus nigra* was recorded in H9 (southern section). If this hedgerow is to be removed then this species should be retained or transplanted within the site, as this is a nationally and locally rare species.

Table 3.1. Summary of hedgerow survey and evaluation

ID	Internal/ boundary[1]	Appraisal Score	Hedgerow Significance	Condition Assessment[3]
H8	16	16	Highly significant (**Heritage Hedgerow**). Scores ≥16 in all appraisal categories and scores >4 in Historical significance category	Favourable Scores 19/24 overall. There appears to be some impact of Ash dieback.
H9	Boundary/ internal	21	Highly significant (**Heritage Hedgerow**). Scores ≥16 in all appraisal categories and also scores a 4 in the Historical significance, Species diversity and Associated features (stream) categories.	Favourable Scores 17/24 overall despite recent vegetation clearance within sections of hedgerow.
H10	Boundary	16	Highly significant (**Heritage Hedgerow**). Scores ≥16 in all appraisal categories and scores a 4 in Historical significance category.	Favourable Scores 19/24 overall, with just two small gaps (<5m) in north and south of the hedgerow. There appears to be some impact of Ash dieback.

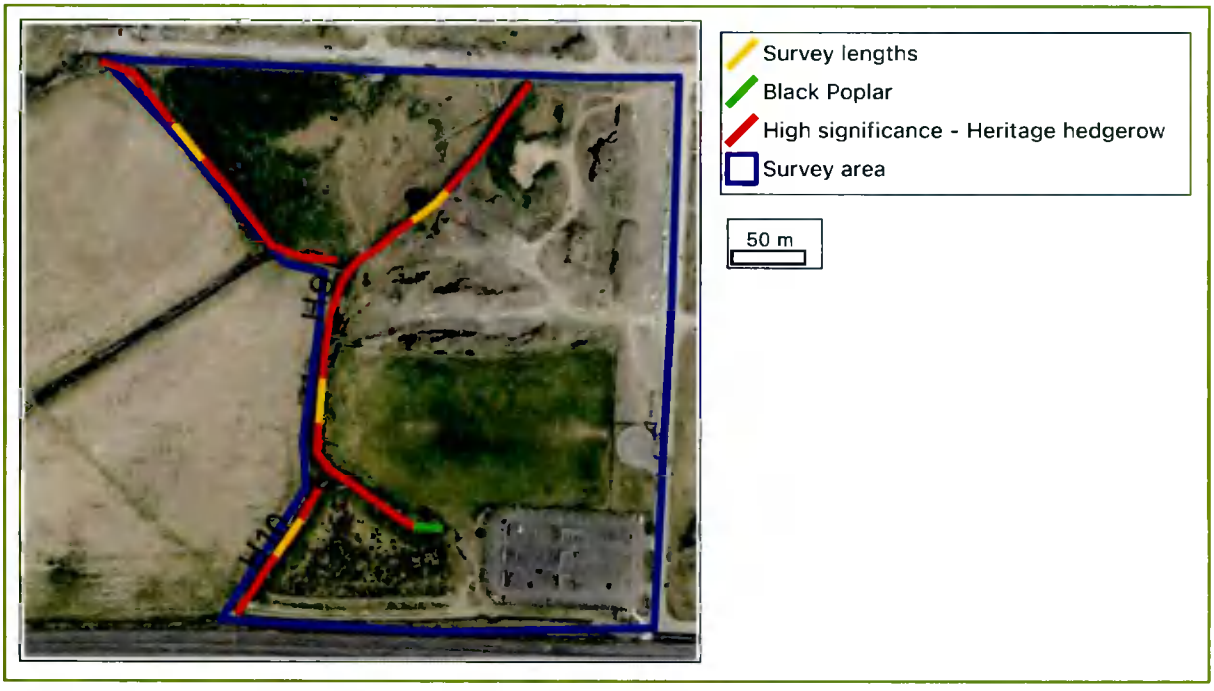

Figure 3.1. Hedgerow Significance map and location of Black Poplar
RGB Aerial Photography - © Bluesky Geospatial Limited

3.2 Summary

Three extant hedgerows were surveyed within the project site. All three hedgerows were ranked as being **Highly significant (Heritage Hedgerows)**:

- H8: Shown on 1st Edition O.S and non-linear (= scores >4 for historical significance). Scores ≥16 in all appraisal categories.
- H9: Associated with a townland boundary, non-linear, high diversity of woody species and formerly associated with a stream. Scores ≥16 in all appraisal categories.
- H10: Associated with a townland boundary). Scores ≥16 in all appraisal categories.
- Black Poplar is present in the southern section of H9 (Figure 3.1) and should be retained/ transplanted within site if this hedgerow is to be removed.

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HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Adamstown hedgerow survey	**Hedgerow/ treeline no.:** H8
Survey date: 09/09/22	**Fossitt:** WL1

Hedgerow description:

A mature boundary hedgerow running NW to SE across the NW corner of the site. There is an abandoned, overgrown field to the E of the hedgerow, dominated by tall ruderals such as *Urtica dioica*. On the W there is an arable field, with ploughing to the base of the hedgerow. There are two small gaps within the hedgerow, which do not appear to be of recent origin. *Ulmus glabra* is dominant to locally abundant within the hedgerow. There is moderate woody species diversity with species such as *Corylus avellana, Crataegus monogyna, Fraxinus excelsior, Prunus spinosa* and *Sambucus nigra.* There is a slight depression/ dry ditch within the hedgerow which is less than 0.5m deep and heavily shaded. Overall the ground flora is moderately species-rich. There were three hedgerow indicator species recorded: *Anthriscus sylvestris, Arum maculatum* and *Glechoma hederacea,* with grassland species such as *Alopecurus pratensis, Chamerion angustifolium, Cirsium arvense, Dactylis glomerata, Galium aparine, Heracleum sphondylium, Rumex obtusifolius, Urtica dioica* and *Vicia sepium.* There are signs of possible Ash dieback and Dutch Elm disease.

Photograph 8.1. Hedgerow H8 (view to NW)

Favourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Alnus glutinosa			*Prunus padus*		
Betula pendula			*Prunus spinosa*	x	x
Betula pubescens			*Pyrus communis*		
Castanea sativa			*Quercus petraea*		
*Clematis vitalba**			*Quercus robur*		
Cornus sanguinea			*Rhamnus catharticus*		
Corylus avellana	x	x	*Rosa* sp.	x	x
Crataegus monogyna	x	x	*Rubus fruticosus* agg.*	x	x
Cytisus scoparius			*Rubus idaeus*		
Euonymus europaeus			*Salix aurita*		
Fraxinus excelsior	x	x	*Salix caprea*		
Hedera helix (H. hibernica)	x	x	*Salix cinerea oleifolia*		
Ilex aquifolium			*Salix pentandra*		
Juglans regia			*Salix triandra*		
Ligustrum vulgare			*Sambucus nigra*	x	x
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica			*Sorbus aria*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Malus sylvestris			*Sorbus hibernica*		
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		
Populus nigra			*Ulex europaeus*		
Populus tremula			*Ulmus glabra*	x	x
Prunus avium			*Ulmus procera*		
Prunus cerasus			*Viburnum opulus*		
Prunus domestica					

*Not included in original species list by Foulkes et al. (2013)

Unfavourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
All coniferous species*			*Lonicera nitida*		
Acer campestre			*Populus alba*		
Acer pseudoplatanus			*Prunus laurocerasus*		
Aesculus hippocastanum			*Salix alba*		
Carpinus betulus			*Salix fragilis*		
Clematis alba			*Prunus laurocerasus*		
Fagus sylvatica			*Syringa vulgaris*		
Fuchsia magellanica			*Tilia* spp.		
Laburnum anagyroides			*Viburnum lantana*		
Ligustrum ovalifolium					

*except *Pinus sylvestris*

Herbaceous Ground Flora

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Ajuga reptans			*Lapsana communis*		
Alliaria petiolata			*Lathraea squamaria*		
Allium ursinum			*Luzula sylvatica*		
Anemone nemorosa			*Lysimachia nemorum*		
Anthriscus sylvestris	x	x	*Neottia nidus-avis*		
Arum maculatum	x	x	*Oxalis acetosella*		
Chrysosplenium oppositifolium			*Potentilla sterilis*		
Conopodium majus			*Primula vulgaris*		
Digitalis purpurea			*Sanicula europaea*		
Epipactis helleborine			*Stachys sylvatica*		
Ficaria verna			*Stellaria holostea*		
Fragaria vesca			*Veronica montana*		
Galium odoratum			*Viola* spp.		
Geranium robertianum					
Geum urbanum					
Glechoma hederacea	x	x			
Hyacinthoides non-scripta					
Hypericum androsaemum					

Ferns and allies

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Asplenium scolopendrium			*Dryopteris aemula*		
Athyrium lix-femina			*Dryopteris carthusiana*		
Blechnum spicant			*Polystichum setiferum*		
Dryopteris filix-mas			*Polypodium spp.*		
Dryopteris dilatata			*Equisetum telmateia*		
Dryopteris affinis			*Equisetum sylvaticum*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Hedgerow significance assessment

0	1	2	3	4
Low significance	**Slightly significant**	**Moderately significant**	**Significant**	**Highly significant**
Historical Significance				
Recently Established (0-25 years)	Internal Field Boundary	Roadside / Rail / Canal Boundary: Farm boundary etc	Boundary appears on 1st Edition O.S	Townland Parish / County Boundary: Shown as, or connected to, woodland on 1st Edition O.S. map:
			3	
	Past evidence of laying or coppicing		Non-linear (excluding roadside)	
			3	
Species Diversity Significance				
Tree / Shrub / Climber Species Count/ 30m strip:				
1-3 species	4-5 species	6-7 species	8-9 species	10+ species
			3	
Ground Flora Significance				
Dominated by ruderal species* - nettles/ docks/ thistles/ cleavers				
0				
Species Count (from list)/ 30m strip:				
<2 species	2-3 species	4-5 species	6-7 species	>7 species
	1			
Pteridophytes from list/ 30m strip:				
			3-5 species	>5 species
0				
Structure, Construction & Associated Features				
	Wall / Bank < 0.5m (height / depth)	Wall / Bank 0.5 - 1m	Wall / Bank > 1m	Double Ditch
	1			
		Dry Ditch	Wet Ditch / Drain	Stream / River
		2		
		Badger Sett		
		Green Lane		
Habitat Connectivity Significance				
No connection with other semi-natural habitat	Single link with semi-natural habitat including hedgerow	Multiple links with semi-natural habitats, including other hedgerows	Link with woodland / forest habitat	Link with designated area, particularly woodland
	1			
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
		2		
Other factors of significance				
Hedgerow H8 was part of a hedgerow to the north, which would be classified as 'non-linear'.				
				Total Significance Score = 16

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Hedgerow condition assessment

	0 Unfavourable	1 Adequate	2 Favourable	3 Highly favourable
Structural variables				
Height	<1.5m	1.5 - 2.5m	2.5 - 4m	>4m
				3
Width	<1m	1 - 2m	2 - 3m	>3m
				3
Profile	Remnant; Derelict	Wind-shaped; Losing base structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
				3
Basal density / porosity to light of woody shrubs	Open	Semi-translucent	Semi-opaque	Opaque / Dense
				3
Continuity				
% gaps	>10%	5-10%	<5%	Continuous
		1		
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
		1		
Negative Indicators/ Degradation / Issues affecting long-term viability				
Bank / Wall	>20% of the length of the hedge degraded	<20% of the length of the hedge degraded	Minor degradation	No degradation
				3
% of canopy dominated by Ivy	>25%			
	-			
Unfavourable species composition: % woody growth volume comprised of unfavourable species	>10%			
	-			
Ground Flora / Hedge Base: % ground layer showing evidence of Herbicide Use	>20%			
	-			
Ground Flora / Hedge Base: % Noxious weeds/ Nutrient Rich Species	>20%			
	-			
Ground Flora / Hedge Base: Alien invasive species	Present			
	-			
Degraded Margin	Ploughing up to base of hedge shrubs or Poaching/erosion		(grassy) margin (2 m or greater on one side of the hedge)	(grassy) margins (2 m or greater on both sides of the hedge)
			2	
				Total Condition Assessment Score = 19

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Adamstown hedgerow survey	**Hedgerow/ treeline no.:** H9
Survey date: 09/09/22	**Fossitt:** WL1/ WL2

Hedgerow description:

This is a mature hedgerow which is partly internal and partly a boundary hedgerow (western part). It has a northern section (H9a), which has been managed and comprises a low hedgerow with one mature tree (Photograph 9.1). The central and southern sections (H9b) have not been recently managed and are dominated by mature trees. There has been disturbance to the southern and central sections (vegetation clearance) to provide access for tree inspections. The hedgerow has unmanaged grassland/ scrub to the S and NW, recently cleared ground and a playing pitch (amenity grassland) to the west and an arable field to the west. The hedgerow is associated with a bank which is over 2m in some places. There are tall ruderals (such as *Cirsium arvense*) to the base of the hedge in many locations There was a ditch/ stream associated with the southern part of the hedgerow (H9b) but there was no flow at the time of survey. This is shown on old mapping. However, there was one area with some wetland species (such as *Epilobium hirsutum* and *Phalaris arundinacea*). There is moderate to high woody species diversity. Species diversity was highest in the northern section, but the southern section has a small section with Black Poplar *Populus nigra*, which is possibly native, and is rare in Dublin. The main woody species are *Crataegus monogyna, Fraxinus excelsior* (some very mature specimens) and *Prunus spinosa*. Two survey sections were undertaken (H9a and H9b). The species results are presented separately but the significance of the overall hedgerow is assessed as one unit.

Photograph 9.1. Hedgerow H9a (northern section) (view to NE)

Photograph 9.2. Hedgerow H9a (southern section) (view to W). Red arrow marks location of Black Poplar

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Favourable tree, shrub and woody climber species

Species	30m strip (H9a)	30m strip (H9b)	Hedgerow	Species	30m strip (H9a)	30m strip (H9b)	Hedgerow
Alnus glutinosa				*Prunus padus*			
Betula pendula				*Prunus spinosa*	x	x	x
Betula pubescens				*Pyrus communis*			
Castanea sativa				*Quercus petraea*			
*Clematis vitalba**				*Quercus robur*	x		x
Cornus sanguinea				*Rhamnus catharticus*			
Corylus avellana				*Rosa* sp.	x	x	x
Crataegus monogyna	x	x	x	*Rubus fruticosus agg.**	x	x	x
Cytisus scoparius				*Rubus idaeus*			
Euonymus europaeus	x	x	x	*Salix aurita*			
Fraxinus excelsior	x	x	x	*Salix caprea*			
Hedera helix (H. hibernica)	x	x	x	*Salix cinerea oleifolia*			
Ilex aquifolium				*Salix pentandra*			
Juglans regia				*Salix triandra*			
Ligustrum vulgare				*Sambucus nigra*	x		
Lonicera periclymenum			x	*Solanum dulcamara*			
Malus domestica				*Sorbus aria*			
Malus sylvestris				*Sorbus hibernica*			
Myrica gale				*Sorbus aucuparia*			
Pinus sylvestris				*Taxus baccata*			
Populus nigra			x	*Ulex europaeus*			
Populus tremula				*Ulmus glabra*	x		x
Prunus avium			x	*Ulmus procera*			
Prunus cerasus				*Viburnum opulus*			
Prunus domestica							

*Not included in original species list by Foulkes et al. (2013)

Unfavourable tree, shrub and woody climber species

Species	30m strip (H9a)	30m strip (H9b)	Hedgerow	Species	30m strip (H9a)	30m strip (H9b)	Hedgerow
All coniferous species*				*Lonicera nitida*			
Acer campestre				*Populus alba*			
Acer pseudoplatanus			x	*Prunus laurocerasus*			
Aesculus hippocastanum				*Salix alba*			
Carpinus betulus				*Salix fragilis*			
Clematis alba				*Prunus laurocerasus*			
Fagus sylvatica				*Syringa vulgaris*			
Fuchsia magellanica				*Tilia* spp.			
Laburnum anagyroides				*Viburnum lantana*			
Ligustrum ovalifolium							

*except *Pinus sylvestris*

Herbaceous Ground Flora

Species	30m strip (H9a)	30m strip (H9b)	Hedgerow	Species	30m strip (H9a)	30m strip (H9b)	Hedgerow
Ajuga reptans				*Lapsana communis*			
Alliaria petiolata				*Lathraea squamaria*			
Allium ursinum				*Luzula sylvatica*			
Anemone nemorosa				*Lysimachia nemorum*			
Anthriscus sylvestris				*Neottia nidus-avis*			
Arum maculatum				*Oxalis acetosella*			
Chrysosplenium oppositifolium				*Potentilla sterilis*			
Conopodium majus				*Primula vulgaris*			
Digitalis purpurea				*Sanicula europaea*			
Epipactis helleborine				*Stachys sylvatica*			
Ficaria verna				*Stellaria holostea*			
Fragaria vesca				*Veronica montana*			
Galium odoratum				*Viola* spp.			

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Species	30m strip (H9a)	30m strip (H9b)	Hedgerow	Species	30m strip (H9a)	30m strip (H9b)	Hedgerow
Geranium robertianum							
Geum urbanum							
Glechoma hederacea	x		x				
Hyacinthoides non-scripta							
Hypericum androsaemum							

Ferns and allies

Species	30m strip (H9a)	30m strip (H9b)	Hedgerow	Species	30m strip (H9a)	30m strip (H9b)	Hedgerow
Asplenium scolopendrium		x	x	*Dryopteris aemula*			
Athyrium lix-femina				*Dryopteris carthusiana*			
Blechnum spicant				*Polystichum setiferum*			
Dryopteris filix-mas				*Polypodium spp.*			
Dryopteris dilatata				*Equisetum telmateia*			
Dryopteris affinis				*Equisetum sylvaticum*			

Hedgerow significance assessment

0	1	2	3	4
Low significance	**Slightly significant**	**Moderately significant**	**Significant**	**Highly significant**
Historical Significance				
Recently Established (0-25 years)	Internal Field Boundary	Roadside / Rail / Canal Boundary: Farm boundary etc	Boundary appears on 1st Edition O.S	Townland Parish / County Boundary: Shown as, or connected to, woodland on 1st Edition O.S. map:
				4
	Past evidence of laying or coppicing		Non-linear (excluding roadside)	
			3	
Species Diversity Significance				
Tree / Shrub / Climber Species Count/ 30m strip:				
1-3 species	4-5 species	6-7 species	8-9 species	10+ species
				4
Ground Flora Significance				
Dominated by ruderal species* - nettles/ docks/ thistles/ cleavers				
0				
Species Count (from list)/ 30m strip:				
<2 species	2-3 species	4-5 species	6-7 species	>7 species
0				
Pteridophytes from list/ 30m strip:				
			3-5 species	>5 species
0				
Structure, Construction & Associated Features				
	Wall / Bank < 0.5m (height / depth)	Wall / Bank 0.5 - 1m	Wall / Bank > 1m	Double Ditch
			3	
		Dry Ditch	Wet Ditch / Drain	Stream / River
				4
		Badger Sett		
		Green Lane		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

0	1	2	3	4
Low significance	**Slightly significant**	**Moderately significant**	**Significant**	**Highly significant**
Habitat Connectivity Significance				
No connection with other semi-natural habitat	Single link with semi-natural habitat including hedgerow	Multiple links with semi-natural habitats, including other hedgerows	Link with woodland / forest habitat	Link with designated area, particularly woodland
	1			
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
		2		
Other factors of significance				
Small population of Black Poplar in southern section				
				Total Significance Score = 21

Hedgerow condition assessment

	0 **Unfavourable**	1 **Adequate**	2 **Favourable**	3 **Highly favourable**
Structural variables				
Height	<1.5m	1.5 - 2.5m	2.5 - 4m	>4m
			2 -3	
Width	<1m	1 - 2m	2 - 3m	>3m
			2-3	
Profile	Remnant; Derelict	Wind-shaped; Losing base structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
			2-3	
Basal density / porosity to light of woody shrubs	Open	Semi-translucent	Semi-opaque	Opaque / Dense
				3
Continuity				
% gaps	>10%	5-10%	<5%	Continuous
			2-3	
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
		1-3		
Negative Indicators/ Degradation / Issues affecting long-term viability				
Bank / Wall	>20% of the length of the hedge degraded	<20% of the length of the hedge degraded	Minor degradation	No degradation
		1		
% of canopy dominated by Ivy	>25%			
	-			
Unfavourable species composition: % woody growth volume comprised of unfavourable species	>10%			
	-			
Ground Flora / Hedge Base: % ground layer showing evidence of Herbicide Use	>20%			
	-			

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Ground Flora / Hedge Base: % Noxious weeds/ Nutrient Rich Species	>20%			
	Yes			
Ground Flora / Hedge Base: Alien invasive species	Present			
	-			
Degraded Margin	Ploughing up to base of hedge shrubs or Poaching/erosion		(grassy) margin (2 m or greater on one side of the hedge)	(grassy) margins (2 m or greater on both sides of the hedge)
				0-3
				Total Condition Assessment Score = 13-22

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Adamstown hedgerow survey	**Hedgerow/ treeline no.:** H10
Survey date: 09/09/22	**Fossitt:** WL1

Hedgerow description:

A mature boundary hedgerow running NE to SW across the SW corner of the site. There is unmanaged grassland to the west of the hedgerow (Photograph 10.1) and grassland and scrub on the eastern side (which limited access on this side). There is a gap at the top of the hedgerow, where vegetation has been cleared to provide access to hedgerow H9b, and another at the southern end. *Crataegus monogyna* is abundant with frequent *Fraxinus excelsior*. Some of the Ash trees were mature with possible signs of Ash dieback. The ditch associated with the hedgerow was damp at the northern end with *Juncus effusus*. There is a bank associated with the hedgerow which is over 2m high in places. The hedgerow is shown as a townland boundary on old mapping, which formerly continued south over the railway line.

Photograph 10.1. Hedgerow H10 (view to SW)

Favourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Alnus glutinosa			*Prunus padus*		
Betula pendula			*Prunus spinosa*	x	x
Betula pubescens			*Pyrus communis*		
Castanea sativa			*Quercus petraea*		
*Clematis vitalba**			*Quercus robur*		
Cornus sanguinea			*Rhamnus catharticus*		
Corylus avellana			*Rosa* sp.	x	x
Crataegus monogyna	x	x	*Rubus fruticosus* agg.*	x	x
Cytisus scoparius			*Rubus idaeus*		
Euonymus europaeus			*Salix aurita*		
Fraxinus excelsior	x	x	*Salix caprea*		
Hedera helix (H. hibernica)		x	*Salix cinerea oleifolia*		
Ilex aquifolium			*Salix pentandra*		
Juglans regia			*Salix triandra*		
Ligustrum vulgare			*Sambucus nigra*	x	x
Lonicera periclymenum			*Solanum dulcamara*		x
Malus domestica			*Sorbus aria*		
Malus sylvestris			*Sorbus hibernica*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		
Populus nigra			*Ulex europaeus*		
Populus tremula			*Ulmus glabra*	x	x
Prunus avium			*Ulmus procera*		
Prunus cerasus			*Viburnum opulus*		
Prunus domestica					

*Not included in original species list by Foulkes et al. (2013)

Unfavourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
All coniferous species*			*Lonicera nitida*		
Acer campestre			*Populus alba*		
Acer pseudoplatanus			*Prunus laurocerasus*		
Aesculus hippocastanum			*Salix alba*		
Carpinus betulus			*Salix fragilis*		
Clematis alba			*Prunus laurocerasus*		
Fagus sylvatica			*Syringa vulgaris*		
Fuchsia magellanica			*Tilia* spp.		
Laburnum anagyroides			*Viburnum lantana*		
Ligustrum ovalifolium					

*except *Pinus sylvestris*

Herbaceous Ground Flora

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Ajuga reptans			*Lapsana communis*		
Alliaria petiolata			*Lathraea squamaria*		
Allium ursinum			*Luzula sylvatica*		
Anemone nemorosa			*Lysimachia nemorum*		
Anthriscus sylvestris			*Neottia nidus-avis*		
Arum maculatum			*Oxalis acetosella*		
Chrysosplenium oppositifolium			*Potentilla sterilis*		
Conopodium majus			*Primula vulgaris*		
Digitalis purpurea			*Sanicula europaea*		
Epipactis helleborine			*Stachys sylvatica*		
Ficaria verna			*Stellaria holostea*		
Fragaria vesca			*Veronica montana*		
Galium odoratum			*Viola* spp.		
Geranium robertianum					
Geum urbanum					
Glechoma hederacea					
Hyacinthoides non-scripta					
Hypericum androsaemum					

Ferns and allies

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Asplenium scolopendrium			*Dryopteris aemula*		
Athyrium lix-femina			*Dryopteris carthusiana*		
Blechnum spicant			*Polystichum setiferum*		
Dryopteris filix-mas			*Polypodium spp.*		
Dryopteris dilatata			*Equisetum telmateia*		
Dryopteris affinis			*Equisetum sylvaticum*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Hedgerow significance assessment

0	1	2	3	4
Low significance	**Slightly significant**	**Moderately significant**	**Significant**	**Highly significant**
Historical Significance				
Recently Established (0-25 years)	Internal Field Boundary	Roadside / Rail / Canal Boundary: Farm boundary etc	Boundary appears on 1st Edition O.S	Townland Parish / County Boundary: Shown as, or connected to, woodland on 1st Edition O.S. map:
				4
	Past evidence of laying or coppicing		Non-linear (excluding roadside)	
Species Diversity Significance				
Tree / Shrub / Climber Species Count/ 30m strip:				
1-3 species	4-5 species	6-7 species	8-9 species	10+ species
		2		
Ground Flora Significance				
Dominated by ruderal species* - nettles/ docks/ thistles/ cleavers				
0				
Species Count (from list)/ 30m strip:				
<2 species	2-3 species	4-5 species	6-7 species	>7 species
0				
Pteridophytes from list/ 30m strip:				
			3-5 species	>5 species
0				
Structure, Construction & Associated Features				
	Wall / Bank < 0.5m (height / depth)	Wall / Bank 0.5 - 1m	Wall / Bank > 1m	Double Ditch
			3	
		Dry Ditch	Wet Ditch / Drain	Stream / River
			3	
		Badger Sett		
		Green Lane		
Habitat Connectivity Significance				
No connection with other semi-natural habitat	Single link with semi-natural habitat including hedgerow	Multiple links with semi-natural habitats, including other hedgerows	Link with woodland / forest habitat	Link with designated area, particularly woodland
		2		
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
		2		
Other factors of significance				
Hedgerow H8 was part of a hedgerow to the north, which would be classified as 'non-linear'.				
				Total Significance Score = 16

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Hedgerow condition assessment

	0 Unfavourable	1 Adequate	2 Favourable	3 Highly favourable
Structural variables				
Height	<1.5m	1.5 - 2.5m	2.5 - 4m	>4m
				3
Width	<1m	1 - 2m	2 - 3m	>3m
				3
Profile	Remnant; Derelict	Wind-shaped; Losing base structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
				3
Basal density / porosity to light of woody shrubs	Open	Semi-translucent	Semi-opaque	Opaque / Dense
			2	
Continuity				
% gaps	>10%	5-10%	<5%	Continuous
		1		
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
		1		
Negative Indicators/ Degradation / Issues affecting long-term viability				
Bank / Wall	>20% of the length of the hedge degraded	<20% of the length of the hedge degraded	Minor degradation	No degradation
				3
% of canopy dominated by Ivy	>25%			
	-			
Unfavourable species composition: % woody growth volume comprised of unfavourable species	>10%			
	-			
Ground Flora / Hedge Base: % ground layer showing evidence of Herbicide Use	>20%			
	-			
Ground Flora / Hedge Base: % Noxious weeds/ Nutrient Rich Species	>20%			
	-			
Ground Flora / Hedge Base: Alien invasive species	Present			
	-			
Degraded Margin	Ploughing up to base of hedge shrubs or Poaching/erosion		(grassy) margin (2 m or greater on one side of the hedge)	(grassy) margins (2 m or greater on both sides of the hedge)
				3
				Total Condition Assessment Score = 19

Appendix 2 Bird survey report

Late and Early Season Breeding Bird Survey, Adamstown Boulevard Lands

Adamstown, Lucan,

Co. Dublin.

John Fox

10th August 2021 and 22nd March 2022.

Fig 1. Lands close to northern boundary. (Photo. J Fox)

John Fox

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Summary:

On 10th August 2021 and 22nd March 2022 breeding bird surveys were undertaken on the lands known as, Adamstown Boulevard, Adamstown, Lucan, Co Dublin. The lands were visited on these two occasions and this report is based on those visits.

Over the two visits, the lands were walked slowly for almost five hours. The route walked focused primarily on existing hedge rows, areas of scrub and areas with mature trees. Bird Species that were heard or seen were recorded, their position noted, and a breeding status where possible assigned to them.

Data from the visits were assessed and approximate positions for the red or amber listed birds as seen or heard were plotted on aerial photography. Approximate numbers of birds seen, their breeding status where possible, and a conservation status were assigned to each species. A species table and distribution map for the red and amber listed birds observed on the lands were prepared.

A total of 23 common bird species of Ireland were recorded on the lands, none of which were confirmed as breeding. Two species of highest conservation concern (red listed) were recorded, which possibly bred, or will breed on, or very close to the lands. Three species of medium conservation concern were recorded all of which possibly bred or will breed on or close to the lands. The remaining 18 species recorded were of least conservation concern, none of which were confirmed to breed on the site. Most of the green listed species recorded were seen in flight or foraging only and most probably were not breeding on the site at the time of the 2021 visit but some possibly did earlier in the year. Many of the green listed species were heard singing or were seen engaging in other breeding behaviour in 2022 so many may breed later in 2022.

Introduction:

This survey of the breeding birds at the Adamstown Boulevard Lands, Lucan, Co Dublin, was commissioned by Brady Shipman Martin in August 2021. The survey was undertaken on 10th of August 2020 and 22nd March 2022.

This survey aim was to get a snapshot view of the bird species present on the lands late and early in the breeding season of 2021 and 2022 respectively and to indicate the distribution and abundance of any red or amber listed bird species found on the lands as outlined on the aerial photography at figs 6 and 7.

Study area:

The site is approximately 10 hectares in area and is of mixed habitat types. These include, a grass football pitch, spoil heaps, bare ground, recolonising bare ground, hedgerow, scrub and some artificial surfaces including a tarmacadam car park and bus turning area. Part of the lands to the Northwest were surveyed as part of previous breeding birds surveys carried out during April, June and July in 2018 and 2020.

The lands are bounded on the east by a fence and recently constructed road which functions as access to a nearby active construction sites. The lands are bounded to the north by a recently constructed road which is part of an active building site. To the south the lands are bounded by a fence and rail line. Along the western boundary are a variety of hedgerows which separated the survey lands from agricultural fields.

The lands in general are flat apart from in locations where heaps of spoil and drainage channels have been created in the recent past.

Fig 2. Adamstown Boulevard Lands. Overall site aerial photography. Red line encloses approximate extent of lands surveyed. (NOTE – the lands surveyed extend beyond the proposed development boundary)

Methodology:

The site was visited on 10th August 2021 and 22 March 2022. The time spent on the lands, over the two visits, was about four hours and 45 minutes. During that time the lands were walked slowly. Some areas were difficult to walk due to the nature of the vegetation present particularly in 2021.

No visits were made after dark and thus no nocturnal species were recorded during this survey.

All observations took place when weather conditions were suitable for surveying. All species presents were recorded, and a breeding status was assigned where possible by observation of bird behaviour against a series of standardised behavioural indicators. Binoculars (42x10) were used throughout each survey period to aid with identification of species and activities.

Conservation Status: A list of "Birds of Conservation Concern in Ireland 4: 2020-2026"(Gilbert et all 2021) indicates three categories of concern as follows. See appendix 1 for more detail.

- Red list species (high conservation concern).
- Amber list species (medium conservation concern).
- Green list species (least conservation concern).

These statuses have been assigned to all regularly occurring species in Ireland. The criteria on which they have been assessed is based on their international conservation status, historical breeding declines, recent population declines, European conservation status, breeding rarity, localised distribution, and the international importance of populations.

Breeding Status Indicators: The following breeding status indicators were used to establish breeding status.

1. **Confirmed Breeding**: Eggs/nest, Occupied nest, Adult carrying faecal sac or food for young or recently fledged young.
2. **Probable Breeding**: Paired birds seen, Agitated behaviour, Permanent territory, Courtship or display, Nest building or visiting a nest site.
3. **Possible Breeding**: Species in suitable habitat during breeding season or singing male present.
4. **Non-Breeding**: Birds present but not likely breeding due to a lack of suitable nesting habitat and no behavioural evidence to suggest breeding on the site.

The site was entered from the south via the entrance to the carpark just north of Adamstown train Station. All areas of the lands were walked where possible. The location of all birds seen and heard were noted on aerial photography of the lands, together with any information about their breeding status. Emphasis was placed on walking along lines of mature hedge rows and through areas of scrub as these were the habitats potentially most suitable for breeding birds. Weather conditions were also noted at the start of the visit, including rainfall, cloud cover, wind speed and visibility.

Fig 3. Habitat at north-western area of Lands. **(Photo J Fox)**

Results:

A total of 18 bird species were recorded on the site in 2021 with 20 in 2022 giving a combined total of 23 bird species.

One red listed species Meadow Pipit was observed in 2021 and 2022. A single juvenile Meadow Pipit was seen on the lands in 2021, but it could not be confirmed that the species bred on the lands as this individual was not a recent fledgling and may have fledged elsewhere weeks earlier. A single adult Meadow Pipit was also seen in 2022. A single male Yellowhammer was observed in 2022 along the southern boundary of the site.

Three amber listed species were seen during both visits. Skylark, Starling and Linnet, none of which were confirmed as breeding on the lands but possibly did or will later this year.

An additional 18 green listed species were observed none of which were confirmed breeding on the lands but possibly did or will. Juvenile Goldfinch, Linnet, Reed Bunting, Stonechat and Whitethroat were all observed on the lands in 2021. These young birds however could not be confirmed as the offspring of adults, breeding on the lands. All the juvenile birds observed were fully fledged and may have left the nest some weeks earlier and could have travelled to the lands from outside the survey area. Woodpigeon, Wren, Dunnock, Robin, Stonechat, Blackbird, Great Tit, Blue Tit, Long-tailed Tit and Chaffinch were all heard singing or seen engaging in other breeding behaviour in 2022 so may breed later in 2022.

Small mixed flocks of both adult and juvenile Goldfinch and Linnets were observed foraging in many areas of the lands. Up to 26 birds were observed in one such flock in 2021.

A Buzzard was flushed from the mature Tree that is located along the hedge row that runs from southwest to northeast in the northern part of the lands in 2021. This tree was identified as a possible Buzzard nest site during a previous breeding bird survey of this area. Recording a Buzzard in this tree again in this survey supports that possibility. No Buzzard nest, however, was identified in the tree and no Buzzard was recorded there during the 2022 visit.

Fig 4. Reed Bunting (Juvenile). Possible breeding, Adamstown Boulevard Lands. **(Photo J Fox)**

Table 1. Adamstown Boulevard, Lands, Lucan, Co Dublin. Bird Species Identified, Numbers Present and Breeding Status, 2021. Colours represent species conservation status.

Common Name	BTO Code	Species	Breeding Status	Numbers Present
Buzzard	BZ	*Buteo buteo*	Possible Breeding	1 bird 2021 1 bird 2022
Pheasant	PH	*Phasianus colchicus*	Possible Breeding	1 male 2021 1 male 2022
Woodpigeon	WP	*Columba palmubus*	Possible Breeding	8 birds 2021 10 birds 2022
Skylark	S	*Alauda arvensis*	Possible Breeding	1 bird 2021 3 birds 2022
Meadow Pipit	MP	*Anthus pratensis*	Possible Breeding	1 Juvenile 2021 1 Adult 2022
Pied Wagtail	PW	*Motacilla alba*	Possible Breeding	1 bird 2021 1 bird 2022
Wren	WR	*Troglodytes troglodytes*	Possible Breeding	2 males 2021

				8 birds 2022
Dunnock	D.	*Prunella modularis*	Possible Breeding	6 birds 2022
Robin	R.	*Erithacus rubecula*	Possible Breeding	1 bird 2021 4 birds 2022
Stonechat	SC	*Saxicola torquatus*	Possible Breeding	1 Juvenile 2021 2 adults 2022
Blackbird	B.	*Turdus merula*	Possible Breeding	1 bird 2021 5 birds 2022
Whitethroat	WH	*Sylvia communis*	Possible Breeding	2 juveniles 2021
Great Tit	GT	*Parus major*	Possible Breeding	2 birds 2022
Blue Tit	BT	*Parus caeruleus*	Possible Breeding	1 bird 2021 2 birds 2022
Long-tailed Tit	LT	*Aegithalos caudatus*	Possible Breeding	2 birds 2022
Hooded Crow	HC	*Corvus corone cornix*	Possible Breeding	2 birds 2021 4 birds 2022
Raven	RN	*Corvus Corax*	Possible Breeding	1 bird 2021
Starling	SG	*Sturnus vulgaris*	Possible Breeding	4 juveniles 2021
Chaffinch	CH	*Fringilla coelebs*	Possible Breeding	2 birds 2022
Linnet	LI	*Carduelis cannabina*	Possible Breeding	10 birds 2021 9 birds 2022
Goldfinch	GO	*Carduelis carduelis*	Possible Breeding	16 birds 2021
Reed Bunting	RB	*Emberiza schoeniclus*	Possible Breeding	1 Juvenile 2021 1 female 2022
Yellowhammer	1	*Emberiza citrinella*	Possible Breeding	1 male 2022

Fig 5. Stonechat (Juvenile). Possible breeding, Adamstown Boulevard Lands. **(Photo: John Fox)**

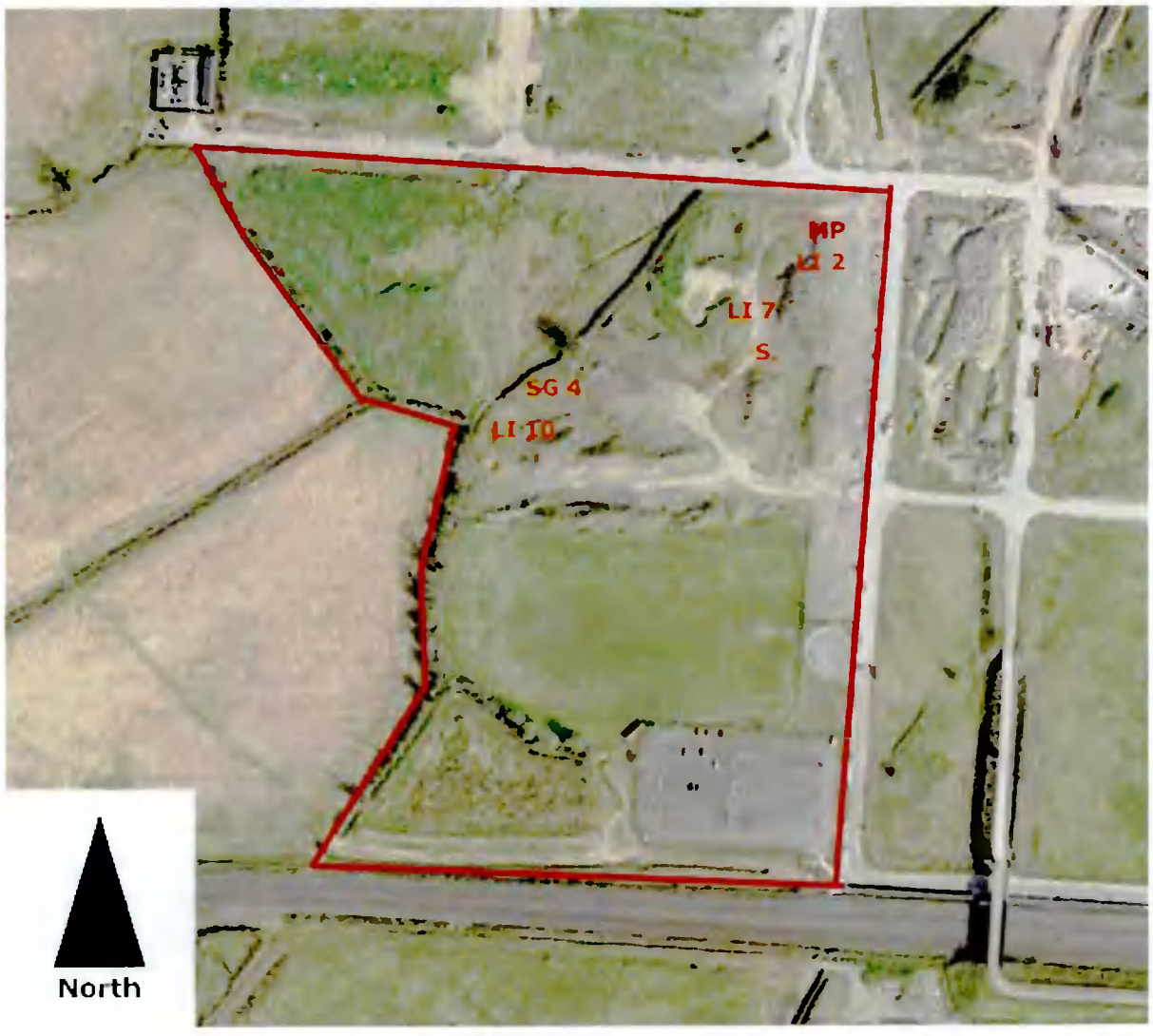

Fig 6. Red and Amber Bird Distribution Map, Adamstown Boulevard Lands, Lucan, 2021. (For BTO Codes see Table 1).

Fig 7. Red and Amber Bird Distribution Map, Adamstown Boulevard Lands, Lucan, 2022. (For BTO Codes see Table 1).

Discussion:

Breeding bird surveys were carried out in 2018 and 2020 that included the north-western part of these lands. Some comparisons can made between this survey and these two previous surveys regarding the species present in that area. That said this report is based on surveys carried out very late in the breeding season of 2021 and very early in the breeding season of 2022. The surveys involved a mid-morning visit on August 10th and an early morning visit on 22nd March 2022. The 2018 and 2020 surveys involved visits in April, June and July in the early morning. Any comparisons should therefore be treated with a degree of caution.

The species encountered on the site in 2021 and 2022 are all widespread common birds of Ireland. Most species observed are currently green listed as species of least conservation concern in Ireland. Two red listed species of highest conservation concern, together with three amber listed species, of medium conservation concern were observed. The red listed species Meadow Pipit and Yellowhammer were not confirmed to breed on the lands however a juvenile Meadow Pipit was

seen and suggests that breeding for this species possibly did occur in 2021. A single adult Meadow Pipit was also seen during the 2022 visit. A single calling Yellowhammer was seen during the 2022 visit and may breed on or close to the site later in 2022.

Yellowhammer was also observed as a probable breeder in the two earlier surveys (2018 and 2020) but no Yellowhammer were encountered on the lands or nearby during the 2021 visit. A single Yellowhammer was seen and heard along the southern boundary close to the rail line in 2022. There is potentially suitable Yellowhammer hedgerow nesting habitat along the western edge of the lands and potential foraging areas in the fields adjoining these hedgerows to the west and south of the rail line.

Three amber listed species Skylark, Starling and Linnet possibly bred or will breed on the lands. Several juvenile Starlings and Linnets were observed foraging on the lands and a single adult Skylark was seen in 2021. These three amber listed species were again seen in 2022. A singing Skylark was observed just west of the site and two Skylarks were seen foraging and in flight close to the north-western corner of the site. Several singing Linnet and possible pairs were seen during the 2022 visit.

During the 2021 visit, a green listed juvenile Stonechat, 2 juvenile Whitethroats and a juvenile Reed Bunting were all observed in the northern part of the lands and possibly bred in that area or close by. During the 2022 visit, two singing Stonechat were observed in the north-western area of the site suggesting that they may breed later in 2022. In the previous survey of 2020, Whitethroat and Reed Bunting were confirmed as breeding while Stonechat was identified as a probable breeding species, close to the northern boundaries of the current survey lands.

During the 2021 survey a single Buzzard was flushed from the mature tree that is located along the hedgerow that runs from southwest to northeast in the northern portion of the lands. A nest, however, was never identified in the tree. It is the authors belief that buzzards may have nested in that tree back in 2018 due to repeated sighting in that tree at that time, however no such sightings occurred during the 2020 or 2022 survey visits. Buzzards were seen and heard during each visit in 2020, 2021 and 2022 but only in flight over the lands. It is possible that this mature tree currently holds a Buzzard nest and did hold one in the past. This possibility has not been confirmed. It can at the very least be said, that this mature tree has been used by Buzzards for perching and perhaps roosting in the past.

Conclusion:

The survey was carried out late in the breeding season on 10th August 2021 and early in the breeding season on 22 March 2022.

23 species, typical of the type of habitats were recorded on the lands. None were confirmed to breed, however all of them possibly did or will.

Two red listed species, three amber listed species and 18 green listed species, were recorded on the lands.

The areas of scrub, mature trees, hedgerows adjoining arable land and all other hedgerows are the habitats of most importance for the breeding birds present on the site. Any hedgerow, scrub or tree removal should only be undertaken outside the breeding season. All mature trees should be retained where possible and checked for existing nest sites. The suggested Buzzard nest site location in the mature tree that was identified in the survey of 2018 and is again mentioned in this report should be checked for any signs of a nest prior to any building work in its vicinity. The extensive Ivy in this tree means that climbing the tree may be the only way to confirm the presence or absence of a Buzzard nest. This tree is to be retained as part of the proposed development.

The site may also support many wintering species including some already mentioned and others not commonly found in Ireland during the breeding season. These may include thrushes such as Fieldfare and Redwing, finches such as Brambling as well as Snipe to name but a few.

Appendix 1.

Birds of Conservation of Concern in Ireland (BoCCI)

The first comprehensive analysis of the population status of birds on the island which identified those species most in need of conservation was published 16 years ago. (Newton et al 1999). It was an initial review followed the publication of the Irish Red Data Book by Wilde in 1993. A further review followed several years later (Lynas et al 2007), which include data for the first time on an all- Ireland basis. A third review six years later BoCCI (Colhoun and Cummin 2013) followed and was also on an all-Ireland basis. BoCCI in Ireland 4: (Gilbert et all 2021) was published this year and forms the basis on which the conservation statuses were assigned to the bird species in this report.

Seven quantitative criteria have been adopted to determine population status for birds in Ireland.
These include, assessments of global and European conservation status, recent population decline (both in terms of numbers and distribution), historical population decline, breeding rarity, localised distribution and international importance.

The status of 211 species in Ireland was assessed against each of the chosen criteria.
Of these, 54 species were assigned to the Red List. A further 79 species were assigned to the Amber List. The remaining 78 species were assigned to the Green List. In terms of conservation concern the Red listed species are species of immediate conservation concern, Amber listed species are of medium-term concern while Green listed species are currently of least conservation concern.

References:

- Gilbert G., Stanbury A., & Lewis L. 2021. Birds of Conservation Concern in Ireland 2020-2026. Irish Birds, 43: 1-22. Birdwatch Ireland, Kilcoole Co Wicklow.
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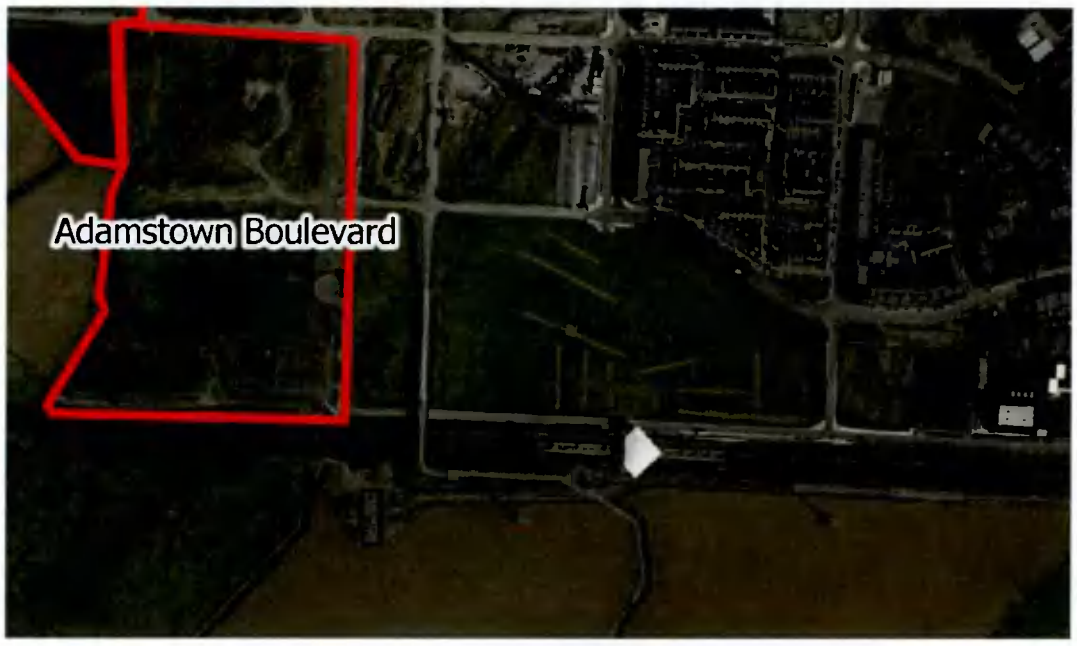
- Lynas, P., Newton, S.F, & Robinson, J.A., 2007. The Status of Birds in Ireland: an analysis of conservation concern 2008 – 2013. Irish Birds 8:149 – 166.
- Newton, S.F., Donaghy, A., Allen, D. & Gibbons, D.1999. Birds of Conservation Concern in Ireland. Irish Birds 6: 333 – 344.

Appendix 3 Bat survey report

A bat assessment of the site at Adamstown,

Dublin entitled 'Adamstown Boulevard'



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March 2022

Introduction

Bats account for nine of Ireland's terrestrial mammal species, approximately one quarter of the species of the Irish land mass. All bat species found are afforded legal protection under Irish and EU legislation and agreements (Wildlife Act (1976), Wildlife (Amendment) Act (2000), S.I. No. 94 of 1997 and S.I. No. 378 of 2005 implementing the EU Habitats Directive, Bonn Convention (The Convention on the Conservation of Migratory Species of Wild Animal) and the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats).

The bat survey undertaken within the site at Adamstown Boulevard in 2021 provides an understanding of the bat usage of the site. The lands are adjacent to lands undergoing construction at present and are close to the developed district of Lucan and the rapidly expanding Adamstown area. There is hedgerow and a number of mature trees along hedgerow within the site but no buildings present.

The railway runs along the southern boundary. There is a car park in the south-eastern corner, sports area within the southern section, and previous excavation to the northern section of the site.

Construction and development will create numerous changes to the site : vegetation loss and a change from a green site to a greater level of concrete and less vegetation, changes in drainage and an overall reduction in biodiversity. In many sites, this may alter the elements of the landscape of benefit to bats including roost sites, hedgerow, mature trees and insect abundance.

Methodology

The site was examined visually for evidence of bat roosts on 29th to 30th September, 2021 and by way of a night-time bat detector survey on 29th September to 30th September 2021 utilising ultrasonic receivers to convert bat signals used in navigation and social interaction to a recordable and measurable pulse. In the field, two different pieces of equipment (An Anabat Walkabout Active Bat Detector and an Echometer Touch 2 Pro (EMT)) provided a screen for instant evaluation while the capacity to record signals allowed for bat identification to be confirmed using sound analysis software (Kaleidoscope). The analysis was carried out by automatic identification and then evaluation of the identifications by the bat specialists.

The entire site was walked before and following sunset. A pre-dawn survey was also carried out to see if any bats returned to any tree within the site. Two surveyors were present throughout the survey period.

The active survey was undertaken by two surveyors one entering the site through the car park perimeter and travelling northwest along a line of poplar trees and continuing clockwise around a football pitch boundary before moving northwards into the next previously quarried area. The second surveyor covered the field to the west of the car park and then proceeded north as well as covering all lands to the west. The lands were examined for approximately 2 hours at sunset and again for 1.5 hours prior to sunrise. Bat activity and any evidence of emergence or return to any tree was noted by the surveyors.

The static bat detector used in this assessment was an Anabat Walkabout and it was placed close to the poplar line and remained in place for one full survey night. The temperature prior to sunrise (which was at 07.26 hours) on 30th September 2021 was 15 degrees Celsius. Conditions were windy and dry after heavy rain during the night after the end of the sunset assessment. Sunset on the night of the bat activity survey was at 19.05 hours. The temperature during the survey commenced at 17°C with a Wind Speed of 24 kmph.

Results

Bat roosts noted - None

A number of mature trees are present within the site that have bat roost potential. These have moderate roost potential. No bats exited from or returned to any tree within the site and bat activity was absent prior to sunrise.

Overall, bat activity was moderate within the site during this assessment and was most concentrated around good vegetation cover. The most widespread species was common pipistrelle. This species was noted in almost all of the survey area. The second most widespread species and the most frequently encountered species was the soprano pipistrelle. The least commonly encountered species of the three species present within the site was Leisler's bat. This species was recorded only once at the western perimeter of the site.

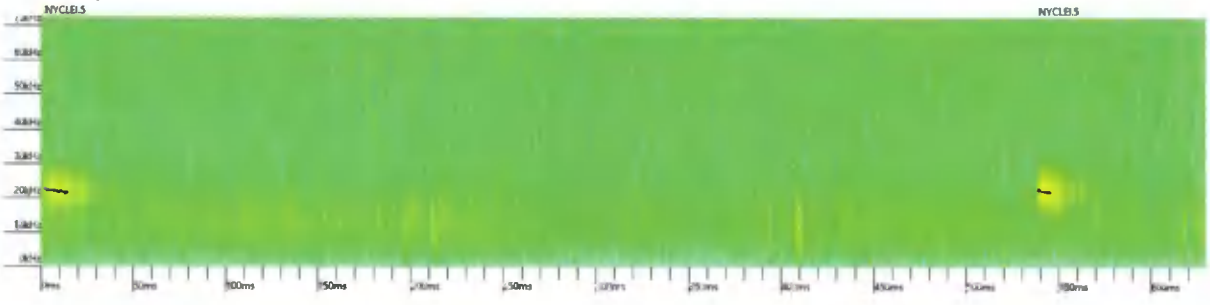
In surveys undertaken in neighbouring areas between 2019 and 2021 by the surveyors, the above three species have been recorded with the additional *Myotis* species; Natterer's bat, which was recorded along hedgerow northeast of the site (900 metres away at the nearest point). From Bat Conservation Ireland data, brown long-eared bats have been recorded within 1 km of the site.

Bat data from Adamstown Boulevard survey September 29th to 30th 2021

Data from the combined observations by the two surveyors

Legend

Green paddle *Common pipistrelle* *Blue paddle* *Soprano pipistrelle*
Yellow paddle *Leisler's bat*



Leisler's bat signal at 20.29 hours

This was the only signal for this species during the assessment

No bat roosts were identified within the site. There are a number of large mature trees including poplars, ash etc. with potential for roosting bats. There are trees with cracks and with dense ivy cover that offer moderate roost potential. Species of bat noted during the assessment: Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*) and Leisler's bat(*Nyctalus leisleri)*.

Potential Impacts of The Proposed Development

Potential roost loss

Tree felling creates a risk of roost loss. This could lead to injury or death to a species protected under the Wildlife Act and Habitats Directive (if a roost were present and not identified) and would therefore constitute a breach of the Irish and EU legislation. There is no evidence that trees within the site are in use as bat roosts from the survey of September 2021. Bats move in and out of roosts on a regular basis and individuals may be present at times other than a specific survey without any evidence. This impact is likely to be moderate and long-term if there is roost loss and no obvious equivalent replacement for the roost loss.

Disturbance from lighting

Lighting will be utilised for two different functions:

1. Access and safety and 2) Security and policing. The former is to allow ease of use at night. The latter is to ensure a perceived higher security level. This may affect light intolerant bat species during foraging and if directed at emergence points would affect all bat species, even those that will feed in illuminated areas. Species such as Leisler's bat and common and soprano pipistrelles are less affected than almost all other Irish bat species and this would not be a significant impact. At worst, it would be a permanent moderately negative impact.

Reduced Feeding

Reduced vegetation including the removal of any of the mature trees within the site will lead to reduced insect abundance. On the night of survey, there were two bat species noted most

commonly around mature trees and good vegetation cover. This will be a permanent moderate negative impact in the absence of mitigation.

Proposed Mitigation

Checking of all trees prior to felling

All mature trees shall be checked by a bat specialist prior to felling or major surgery. If the felling occurs in winter, all suitable cavities offering roost potential to bats shall be checked by a bat specialist by way of access from a hoist or other height access means. Felling in autumn is preferable as it would avoid nesting birds and hibernating bats. A bat detector assessment would be an option for surveying if felling occurred in the period September to early October.

Should bats be found, the tree concerned is protected under the Wildlife Act / Habitats Directive and a derogation to exclude bats and destroy the roost would be required. Mitigation of the roost loss would require further measures including safe retention of bats until the risk from felling is removed, increased bat box provision etc. Other measures may be considered necessary by the bat specialist specific to the situation.

Bat roost provision

One rocket box shall be installed in the southern area of the site with sufficient clearance to all bats to drop from the box and enter it without entering on to the railway line. This should be placed on a post at least 3 metres high, with a clear drop below (as bats need to drop to start their flight).

Planting

Native shrubs and trees shall be used within the new development planting regime. Where other climbers and shrubs are required, they should be taken from the approved list from the All-Ireland Pollinator Plan –

http://www.biodiversityireland.ie/wordpress/wpcontent/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf

Vegetation retention

If it is impossible to incorporate the existing free-standing oak into the project layout, it is proposed that the tree is re-located or replaced with a mature tree.

Lighting

All bats are sensitive to lighting. Dark skies areas shall be designated along treelines within the proposed development to allow commuting areas.. Existing vegetation should be retained where possible. Light pollution can be minimised by the use of low-level bollard lighting, (with minimum spillage) in pedestrian areas, and by using sensor timers, caps, and hoods on streetlights.

The lighting design will be in accordance with:

- Bats and Lighting – Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010);
- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011);

(6) There shall be no UV component to the lighting.

(7) Monitoring of the rocket box shall take place within a year of the development being built, and should the box be unused or considered unsuitable due to unintentional light spill, scrub or fence impedance, modifications shall be made to provide optimal conditions for use.

Impacts of The Proposed Development After Mitigation

There will be a loss of vegetation within the site and an increase in lighting in areas where lighting is essential for traffic movement. This will lead to a slight to negligible negative impact upon bats.

Appendices

Bat Conservation Ireland data: search results 13 Mar 2022					
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bats within 1000m of O0162833076.					
Roosts					
Name	Grid reference	Grid ref easting	Grid ref northing	Address	Species observed
Airlie Stud Stable Block; Adamstown; Co. Dublin	O020336	302000	233600	Airlie Stud Stable Block; Adamstown; Co. Dublin	Unidentified bat
Tandys Lane Farmhouse; Adamstown; Co. Dublin	O025334	302500	233400	Tandys Lane farmhouse;Tandys Lane; Adamstown;Lucan; Co. DUblin.	Plecotus auritus; Unidentified bat
Ad-hoc observations					
Survey	Grid reference	Grid ref easting	Grid ref northing	Date	Species
Faith Wilson	O0233	302000	233000	31/08/2009	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus; Plecotus auritus
Faith Wilson	O0133	301000	233000	01/09/2009	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus

Bat activity recorded by the static monitor within the site 29th to 30th September 2021

Date	Time	Auto id*	Pulses	Matching	Manual id
29/09/2021	19:35:00	Soprano pipistrelle	4	4	Soprano pipistrelle
29/09/2021	19:38:18	Soprano pipistrelle	3	3	Soprano pipistrelle
29/09/2021	19:39:35	Soprano pipistrelle	22	22	Soprano pipistrelle
29/09/2021	19:41:07	Common pipistrelle	22	22	Common pipistrelle
29/09/2021	19:42:09	Soprano pipistrelle	66	65	Soprano pipistrelle
29/09/2021	19:43:14	Soprano pipistrelle	61	61	Soprano pipistrelle
29/09/2021	19:43:29	Soprano pipistrelle	51	51	Soprano pipistrelle
29/09/2021	19:43:50	Soprano pipistrelle	34	34	Soprano pipistrelle
29/09/2021	19:44:08	Soprano pipistrelle	27	27	Soprano pipistrelle
29/09/2021	19:44:45	Soprano pipistrelle	31	31	Soprano pipistrelle
29/09/2021	19:45:15	Soprano pipistrelle	40	40	Soprano pipistrelle
29/09/2021	19:45:46	Soprano pipistrelle	19	19	Soprano pipistrelle
29/09/2021	19:46:14	Soprano pipistrelle	98	93	Soprano pipistrelle
29/09/2021	19:46:50	Soprano pipistrelle	62	61	Soprano pipistrelle
29/09/2021	19:47:10	Soprano pipistrelle	53	53	Soprano pipistrelle
29/09/2021	19:47:26	Soprano pipistrelle	53	53	Soprano pipistrelle
29/09/2021	19:47:50	Soprano pipistrelle	36	36	Soprano pipistrelle
29/09/2021	19:48:16	Soprano pipistrelle	42	42	Soprano pipistrelle
29/09/2021	19:48:27	Soprano pipistrelle	46	46	Soprano pipistrelle
29/09/2021	19:48:39	Soprano pipistrelle	97	97	Soprano pipistrelle
29/09/2021	19:49:18	Soprano pipistrelle	61	61	Soprano pipistrelle
29/09/2021	19:49:41	Soprano pipistrelle	47	47	Soprano pipistrelle
29/09/2021	19:50:04	Soprano pipistrelle	111	109	Soprano pipistrelle
29/09/2021	19:50:40	Soprano pipistrelle	33	33	
29/09/2021	19:51:42	Soprano pipistrelle	37	37	
29/09/2021	19:52:06	Soprano pipistrelle	16	16	
29/09/2021	19:52:17	Soprano pipistrelle	38	38	
29/09/2021	19:52:42	Soprano pipistrelle	29	29	
29/09/2021	19:53:01	Soprano pipistrelle	44	44	
29/09/2021	19:53:19	Soprano pipistrelle	40	40	
29/09/2021	19:53:59	Soprano pipistrelle	54	54	
29/09/2021	19:54:22	Soprano pipistrelle	62	62	
29/09/2021	19:54:43	Soprano pipistrelle	48	48	
29/09/2021	19:54:56	Soprano pipistrelle	54	54	
29/09/2021	19:55:09	Noise			
29/09/2021	19:55:26	Soprano pipistrelle	92	88	Soprano pipistrelle
29/09/2021	19:55:47	Soprano pipistrelle	102	100	Soprano pipistrelle
29/09/2021	19:56:03	Soprano pipistrelle	92	92	Soprano pipistrelle
29/09/2021	19:56:30	Soprano pipistrelle	105	101	Soprano pipistrelle
29/09/2021	19:56:53	Soprano pipistrelle	13	13	
29/09/2021	19:57:11	Soprano pipistrelle	46	46	
29/09/2021	19:57:31	Soprano pipistrelle	107	105	Soprano pipistrelle
29/09/2021	19:57:52	Soprano pipistrelle	55	55	
29/09/2021	19:58:12	Soprano pipistrelle	85	85	
29/09/2021	19:58:38	Soprano pipistrelle	69	68	
29/09/2021	19:59:01	Soprano pipistrelle	57	57	

29/09/2021	19:59:26	Soprano pipistrelle	65	65	
29/09/2021	20:00:09	Soprano pipistrelle	55	55	
29/09/2021	20:00:36	Soprano pipistrelle	45	45	
29/09/2021	20:01:01	Soprano pipistrelle	60	60	
29/09/2021	20:01:37	Soprano pipistrelle	33	33	
29/09/2021	20:02:28	Soprano pipistrelle	46	46	
29/09/2021	20:02:48	Soprano pipistrelle	17	17	
29/09/2021	20:03:10	Soprano pipistrelle	70	69	
29/09/2021	20:03:33	Common pipistrelle	96	87	Common pipistrelle
29/09/2021	20:03:49	Soprano pipistrelle	125	121	Soprano pipistrelle
29/09/2021	20:04:08	Soprano pipistrelle	92	92	Soprano pipistrelle
29/09/2021	20:04:35	Soprano pipistrelle	128	96	Common pipistrelle Soprano pipistrelle
29/09/2021	20:04:51	Soprano pipistrelle	19	19	
29/09/2021	20:05:08	Soprano pipistrelle	71	70	
29/09/2021	20:05:33	Soprano pipistrelle	58	58	
29/09/2021	20:05:58	Soprano pipistrelle	60	60	
29/09/2021	20:06:45	Soprano pipistrelle	51	51	
29/09/2021	20:07:01	Soprano pipistrelle	93	88	Soprano pipistrelle
29/09/2021	20:07:28	Soprano pipistrelle	49	43	
29/09/2021	20:07:43	Soprano pipistrelle	103	100	Soprano pipistrelle
29/09/2021	20:09:19	Soprano pipistrelle	61	61	
29/09/2021	20:09:41	Soprano pipistrelle	57	57	
29/09/2021	20:10:28	Soprano pipistrelle	48	48	
29/09/2021	20:10:58	Soprano pipistrelle	26	26	
29/09/2021	20:11:16	Soprano pipistrelle	30	30	
29/09/2021	20:11:24	Soprano pipistrelle	22	22	
29/09/2021	20:12:22	Soprano pipistrelle	63	61	
29/09/2021	20:12:42	Soprano pipistrelle	66	64	
29/09/2021	20:13:24	Soprano pipistrelle	42	42	
29/09/2021	20:14:17	Soprano pipistrelle	52	52	
29/09/2021	20:15:16	Soprano pipistrelle	62	61	
29/09/2021	20:15:33	Soprano pipistrelle	25	25	
29/09/2021	20:15:54	Soprano pipistrelle	29	29	
29/09/2021	20:16:15	Soprano pipistrelle	58	58	
29/09/2021	20:16:41	Soprano pipistrelle	101	99	Soprano pipistrelle
29/09/2021	20:16:57	Soprano pipistrelle	21	20	
29/09/2021	20:17:06	Common pipistrelle	124	120	Common pipistrelle
29/09/2021	20:17:22	Common pipistrelle	100	75	Common pipistrelle
29/09/2021	20:17:51	Soprano pipistrelle	122	101	Common pipistrelle Soprano pipistrelle
29/09/2021	20:18:26	Soprano pipistrelle	52	51	
29/09/2021	20:18:49	Soprano pipistrelle	58	58	
29/09/2021	20:19:03	Soprano pipistrelle	69	68	
29/09/2021	20:19:46	Soprano pipistrelle	53	53	
29/09/2021	20:20:10	Soprano pipistrelle	75	74	
29/09/2021	20:20:38	Soprano pipistrelle	60	60	
29/09/2021	20:21:24	Soprano pipistrelle	54	54	
29/09/2021	20:21:39	Common pipistrelle	45	45	
29/09/2021	20:21:54	Soprano pipistrelle	52	52	
29/09/2021	20:22:14	Soprano pipistrelle	50	50	

29/09/2021	20:22:41	Soprano pipistrelle	55	55	
29/09/2021	20:23:23	Soprano pipistrelle	80	80	
29/09/2021	20:24:12	Soprano pipistrelle	66	66	
29/09/2021	20:24:57	Soprano pipistrelle	57	57	
29/09/2021	20:25:20	Soprano pipistrelle	116	115	Soprano pipistrelle
29/09/2021	20:26:15	Soprano pipistrelle	61	61	
29/09/2021	20:26:49	Soprano pipistrelle	65	65	
29/09/2021	20:27:29	Soprano pipistrelle	35	35	
29/09/2021	20:27:38	Soprano pipistrelle	36	36	
29/09/2021	20:27:59	Soprano pipistrelle	86	86	Soprano pipistrelle
29/09/2021	20:29:40	Soprano pipistrelle	27	27	
29/09/2021	20:39:15	Noise			
29/09/2021	20:42:23	Soprano pipistrelle	46	46	
29/09/2021	20:43:07	Common pipistrelle	100	96	Common pipistrelle
29/09/2021	20:43:29	Common pipistrelle	59	53	Common pipistrelle
29/09/2021	20:43:50	Common pipistrelle	14	14	
29/09/2021	20:44:38	Common pipistrelle	35	33	
29/09/2021	20:52:04	Noise			
29/09/2021	20:55:29	Common pipistrelle	29	29	
29/09/2021	20:55:47	Common pipistrelle	61	59	Common pipistrelle
29/09/2021	20:56:08	Common pipistrelle	46	46	
29/09/2021	20:56:24	Soprano pipistrelle	32	32	
29/09/2021	20:57:28	Common pipistrelle	41	38	
29/09/2021	21:00:06	Common pipistrelle	34	21	
29/09/2021	21:00:22	Common pipistrelle	101	83	Common pipistrelle
29/09/2021	21:00:38	Noid	3	0	
29/09/2021	21:06:38	Soprano pipistrelle	39	39	
29/09/2021	21:10:54	Soprano pipistrelle	41	41	
29/09/2021	21:14:00	Soprano pipistrelle	27	27	
29/09/2021	21:18:19	Soprano pipistrelle	99	99	Soprano pipistrelle
29/09/2021	21:18:45	Soprano pipistrelle	38	38	
29/09/2021	21:29:11	Common pipistrelle	45	41	
29/09/2021	21:33:10	Soprano pipistrelle	30	30	
29/09/2021	21:37:24	Soprano pipistrelle	37	37	
29/09/2021	22:05:05	Soprano pipistrelle	39	39	
29/09/2021	22:20:35	Soprano pipistrelle	31	31	
29/09/2021	22:29:30	Soprano pipistrelle	19	19	
29/09/2021	22:31:55	Soprano pipistrelle	25	25	
29/09/2021	22:32:05	Soprano pipistrelle	18	18	
29/09/2021	22:32:20	Soprano pipistrelle	38	38	
29/09/2021	22:34:21	Common pipistrelle	99	96	Common pipistrelle
29/09/2021	22:34:38	Common pipistrelle	20	20	
29/09/2021	22:35:28	Common pipistrelle	61	59	Common pipistrelle
29/09/2021	22:40:52	Soprano pipistrelle	15	15	Soprano pipistrelle
29/09/2021	22:41:06	Soprano pipistrelle	33	33	Soprano pipistrelle
29/09/2021	22:41:19	Soprano pipistrelle	41	41	Soprano pipistrelle
29/09/2021	22:48:41	Soprano pipistrelle	40	40	Soprano pipistrelle

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