Tandy's Lane Village, Phase 2, Adamstown SDZ

Ecological Appraisal

BSM Brady Shipman Martin
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Client: Quintain Developments Ireland Ltd

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Contents

1 Introduction

Quintain Developments Ireland Ltd is seeking permission for a proposed development at Tandy's Lane Village (Phase 2) 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 impacts 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).

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, 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 numerous comprehensive ecological surveys have been carried out at the site between 2019 and 2022. These included 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 (Brian Keeley, bat and large mammal ecologist; Dr Joanne Denyer MCIEEM, botanist; and John Fox, ornithologist).

A final follow-up and verification survey was carried out by the author 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);
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013);
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 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 (as amended);
- European Commission (EC) Habitats Directive 92/43/EEC;
- European Commission (EC) Birds Directive 2009/147/EC;
- European Communities (Birds and Natural Habitats) Regulations 2011(as amended);
- Flora (Protection) Order 2015.
- EIA Directive 2011/92/EU of the European Parliament;
- EIA Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014;
- 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:

- *Third National Biodiversity Plan 2017 – 2021* (Department of Culture, Heritage and the Gaeltacht, 2017);
- *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (Inland Fisheries Ireland, 2016);
- *Planning for Watercourses in the Urban Environment* (Inland Fisheries Ireland, 2020);
- *All-Ireland Pollinator Plan 2021-2025* (National Biodiversity Data Centre);
- *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 Housing, Local Government and Heritage (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 also undertaken, in 2019, 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 Tandy's Lane Village. 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 September 2021 in accordance with best practice guidelines (*Bat Surveys: Good Practice Guidelines* (Hundt 2012*), 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.

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 2018 and 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. As noted in the guidelines, the following geographic frames of reference are used when determining ecological value:

- International Importance;
- National Importance;
- County Importance; and
- Local Importance (Higher Value).

In the context of the proposed development site at Adamstown, a Key Ecological Receptor is defined as any feature valued between Local Importance (Higher Value), such as sites containing semi-natural habitat types with high biodiversity in a local context, or populations of species that are uncommon in the locality, and International Value (such as a European site).

Features of local importance (Lower Value) and features without ecological value are not considered to be Key Ecological Receptors in this context.

3 Existing environment

3.1 General description of the study area and receiving environment

The site proposed for development (see Figure 1) forms part of Development Area 6 (Tandy's Lane Village) in Adamstown SDZ. It is the second phase of development in the wider Tandy's Lane Village Tile, and is located on either side of the permitted development (Phase 1), currently under construction.

The proposed development comprises of 352 No. dwellings in a mixture of terraced, semi – detached and detached houses, distributed between two sites, namely the western site (8.06 hectares) and the eastern site (2.18 hectares).

The site comprises a number of disused agricultural fields, separated by heavily cut hedgerows, with associated (dry) ditches in places. A non-linear townland boundary hedgerow, with mature trees, runs through the permitted Phase 1 development.

There are no functioning streams on the site, however, associated with the non-linear hedgerow retained as part of the permitted Phase 1 development is a former stream, the Laraghcon Stream, which once connected the site to the Griffeen River. It is now a generally dry ditch, which periodically contains standing water. According to the EPA water features database[1], this (former) stream discharges to the Griffeen River at a point approximately 1.2km downstream of the proposed development site, to the north of the N4 road (Vesey Park). The Griffeen in turn flows into the River Liffey at Lucan.

Figure 1 Location of the proposed development site (red line shows indicative site area – refer to planning application documentation for full details)

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

3.2 Designated conservation areas

Screening for Appropriate Assessment has been undertaken, and an Appropriate Assessment Screening Report has been prepared in order to address any potential impacts on European sites. **Figure 2** indicates the location of European sites in relation to the proposed development site.

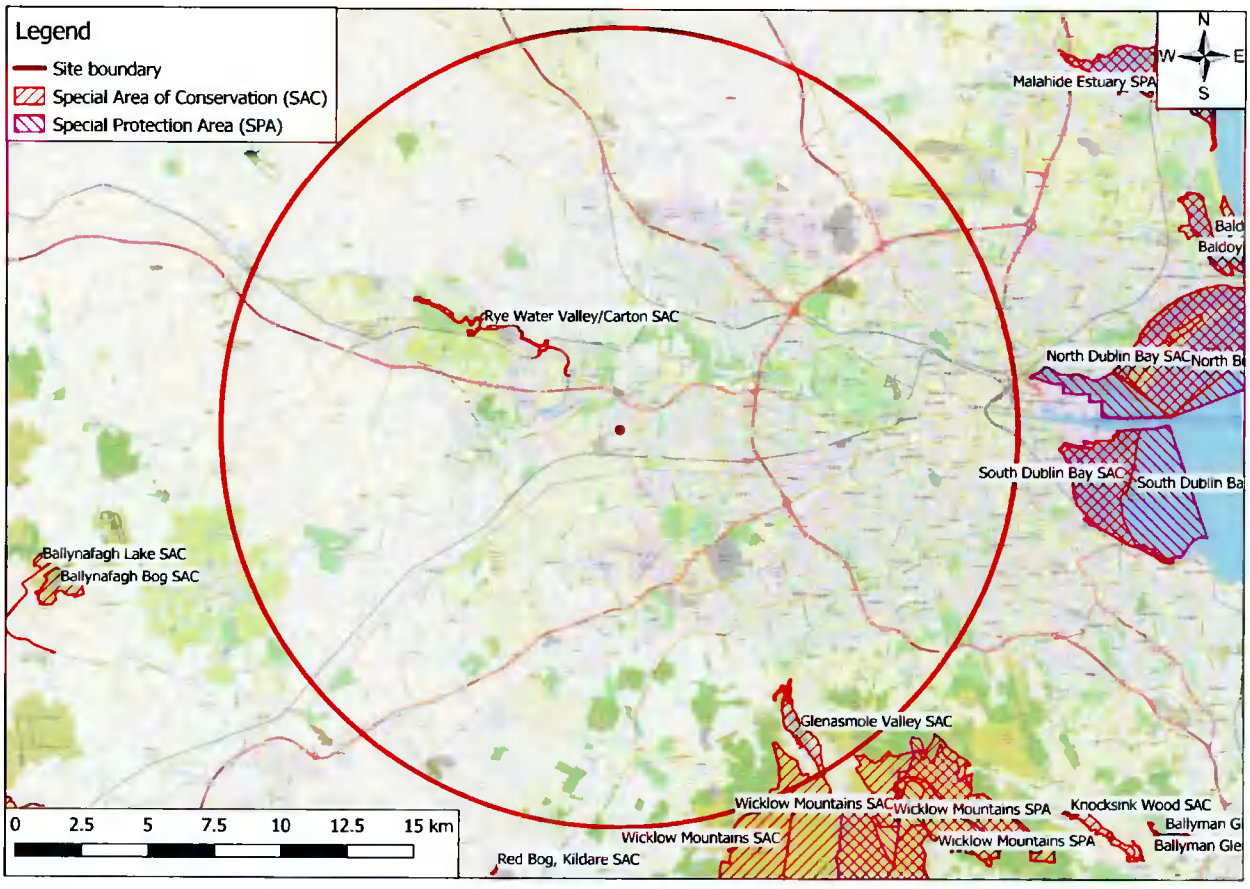

Figure 2: European Sites in relation to the study site, with a red line indicating a 15km radius around the site

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 Liffey Valley proposed Natural Heritage Area (pNHA site code 000128), c.1.3km to the north, Grand Canal pNHA (site code 002104), c.1.6km to the south, and Royal Canal pNHA (site code 002103), c.2.9km to the north.

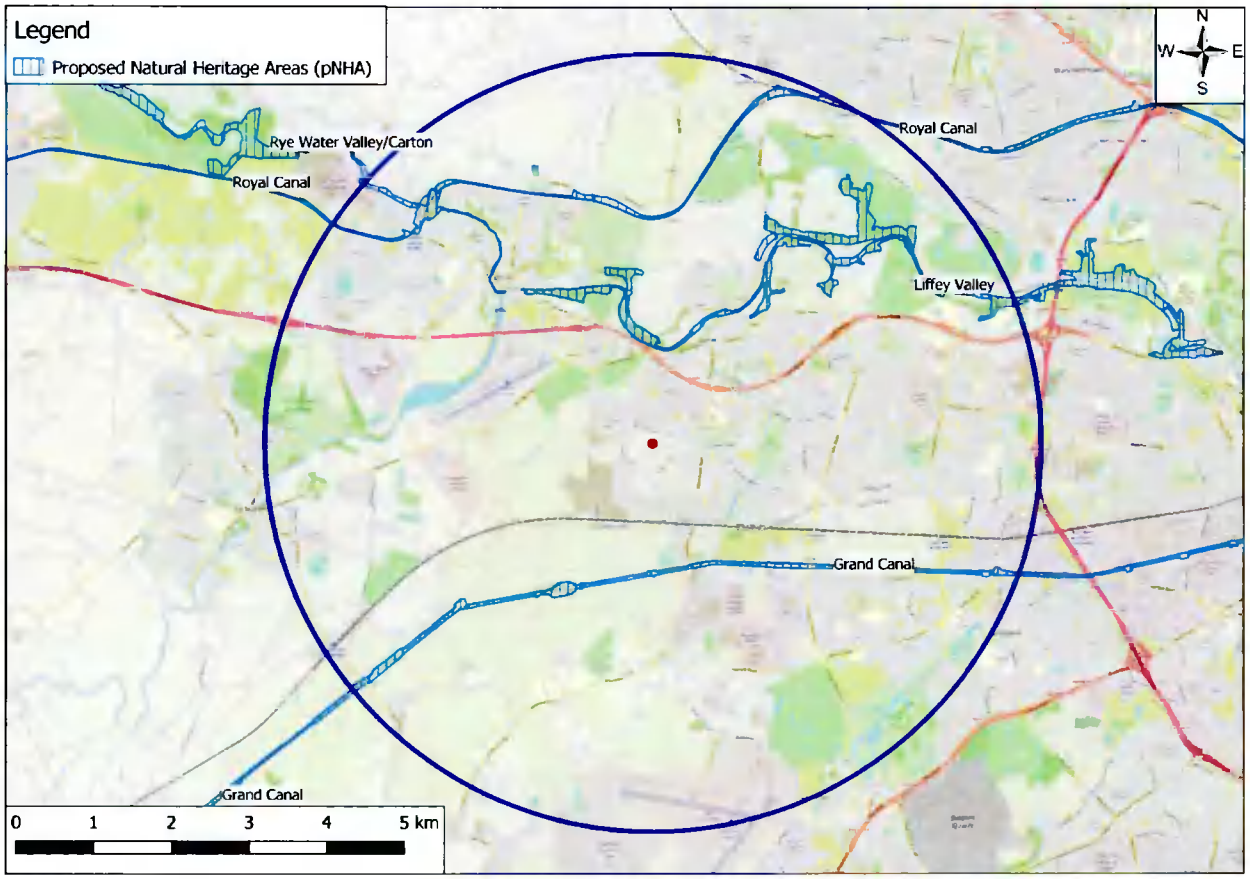

Figure 3: Non-European Sites in relation to the study site, with a blue line indicating a 5km radius around the site

3.3 Rare and protected species

The proposed development site is not under any wildlife or conservation designation. The NPWS database was consulted with regard to rare species and species protected under the *Flora Protection Order* (2015). There are records of a number of protected species within the 10km grid square (O03) that covers the proposed development area, including hairy St. John's wort (*Hypericum hirsutum*), basil thyme (*Acinos arvensis*), red hemp nettle (*Galeopsis angustifolia*), meadow barley (*Hordeum secalinum*), betony (*Stachys officinalis*), opposite-leaved pondweed (*Groenlandia densa*) and hairy violet (*Viola hirta*).

A population of one rare and protected species, hairy St. John's wort listed in the *Irish Red Data Book 1 – Vascular Plants (Curtis & McGough, 1988)* and the *Flora Protection Order*, 2015 has been recorded in the wider area of Adamstown SDZ, within the boundary of a proposed park (Airlie Park) which is currently under construction, as well as within the Aderrig tile, within the alignment of a proposed (and permitted) linear park. No legally protected plant species, including hairy St. John's wort, are known to occur within the Tandy's Lane Village site and none were recorded during any of the field surveys undertaken.

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 proposed development site is shown in Figure 1.

The proposed development site comprises two distinct areas. The western site is larger, and comprises two fields, formerly in agricultural use, that have lain unmanaged for a number of years. The fields have developed as relatively species rich meadow (Fossitt code **GS1/GA1**). Species of note include a range of grasses, such as Timothy (*Phleum pratense*), meadowgrass (*Poa annua*), ryegrass (*Lolium perrene*), creeping bent (*Agrostis stolonifera*), crested dogstail (*Cynosurus cristatus*), Yorkshire fog (*Holcus lanatus*), and the bent grasses *Agrostis capillaris* and *A. stolonifera*.

Non-grass species present in the grassland include nettle (*Urtica dioica*), 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*). Patches of bramble (*Rubus fruticosus* Agg.) are encroaching in places. Other species occasionally present on the field boundaries include scarlet pimpernel (*Anagallis arvensis*), self-heal (*Prunella vulgaris*) and knapweed (*Centaurea nigra*). Some creeping thistle (*Cirsium arvense*), patches of beaked hawk's-beard (*Crepis vesicaria*), creeping buttercup (*Ranunculus repens*) and dock (*Rumex* spp.) are also present. Occasional purple loosestrife (*Lythrum salicaria*) and meadowsweet (*Filipendula ulmaria*), species normally associated with wetter areas, were also recorded.

The eastern site comprises a meadow with similar characteristics to the larger, western site, however it has been modified and disturbed in places and parts of it most closely resemble a scrub/grassland complex (**GS1/WS1**). It is now being recolonised by bramble, and willowherb (*Epilobium* sp.) dominated scrub.

On the northern part of the overall site there are areas of hard standing (**BL3**) and disturbed and bare ground (**ED2/ED3**), now used for materials storage and car parking. In the southern part of the eastern site is a short section of drainage ditch, now dry, roughly corresponding to (**FW4**). Although there are former drainage ditches associated with most of the hedgerows, these are effectively dry now.

Excluding a short section of a former privet hedge, now scrub-dominated (located in the north west corner of the site in the area of disturbed ground), a total of three extant hedgerows (**WL1/WL2**) are present within the Tandy's Lane Village Phase 2 area. One of these hedges (a linear hedge that runs north-south along the eastern edge of the western site) is considered to be a highly significant (heritage) hedgerow. The remaining two hedgerows (one that divides the two western fields, near the northern boundary of the site, and another that is located within the eastern development area) are considered to be moderately significant. Refer to Appendix 1 for full details.

There is an additional highly significant (heritage) hedgerow that runs through the Tandy's Lane Village tile. This is the non-linear townland boundary that has been retained. This is not within the subject application red line boundary and is to be protected as per the conditions of the Phase 1 planning grant.

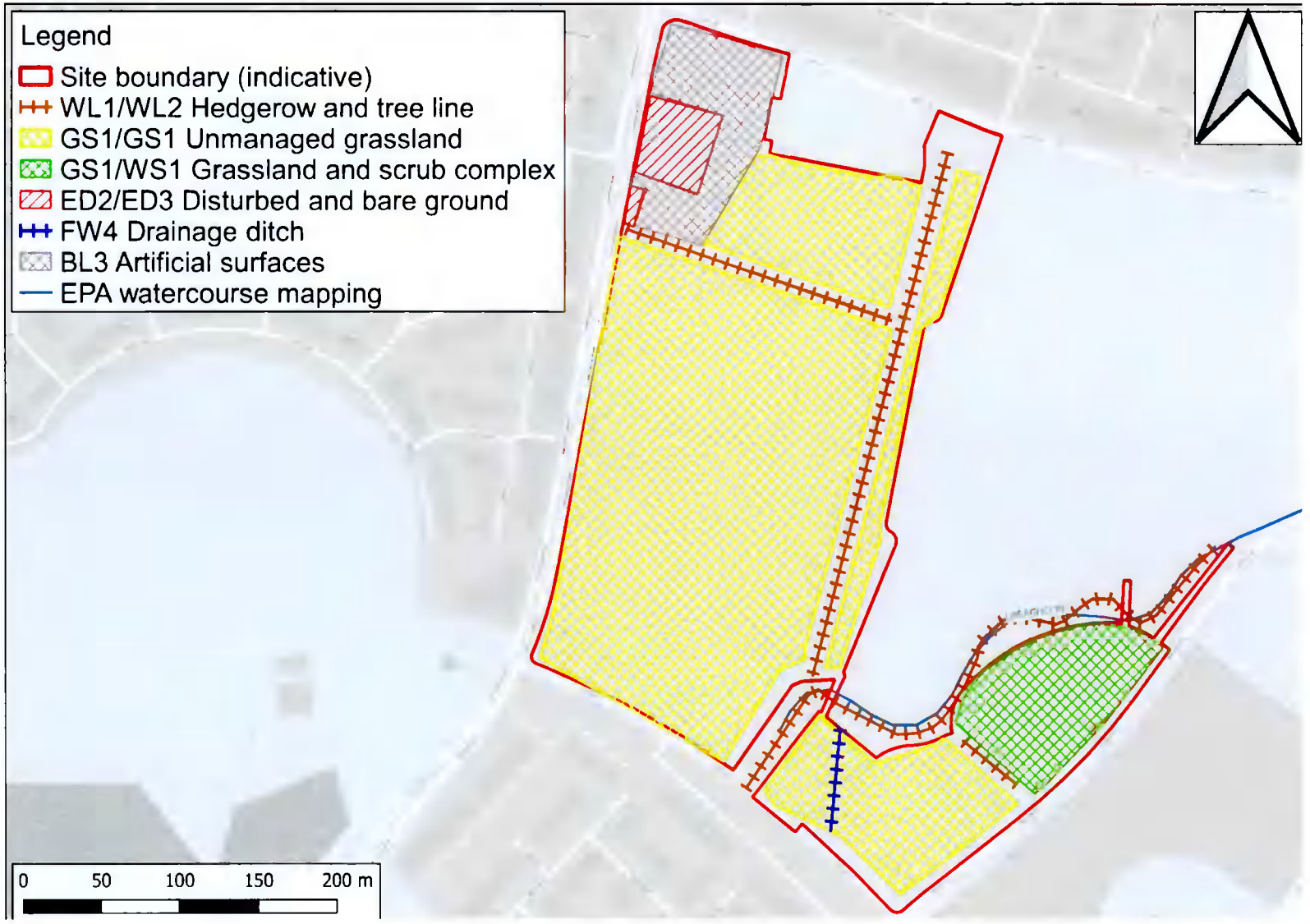

Figure 4: Habitat map for the proposed development site. For the project red line please refer to the reports that accompany the application.

3.4.1.2 Fauna

No bat roosts were recorded during any of the bat surveys undertaken in 2019, 2020 and 2021. A number of mature trees on the site are noted to be densely covered in ivy. These have low roost potential. No bats exited from or returned to any tree within the site during the surveys undertaken and bat activity was very low prior to sunrise.

Three species of bat (common pipistrelle, soprano pipistrelle and Leisler's bat) were recorded on the site in 2021, however the activity was sporadic and overall, bat activity was low within the site during the assessment undertaken in the preparation of this report. The most significant area of bat activity at Tandy's Lane Village remains the non-linear hedgerow that is to be retained and enhanced as part of the Phase 1 development.

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.

A total of 28 bird species were recorded on the Tandy's Lane Village Lands. One red listed species, meadow pipit, was observed carrying food which was confirmed to be breeding in an area of meadow to the southwest of the lands in 2021.

Six amber listed species were observed of which two were probably breeding or had bred on the lands in 2021, barn swallow and skylark. A barn swallow nest was found in the derelict sheds along the northern boundary but was not obviously active during the visits. A single skylark was flushed from the meadow in the southwestern area and was seen to be behaving in an agitated manner confirming it to be a probable breeder in 2021. Two skylarks were seen in the same area in 2022 including one singing bird in flight. The remaining amber listed species possibly bred on the lands earlier in the year or may breed later in 2022. Three of the amber listed species from 2021 were not recorded in 2022. They were barn swallow, house martin and house sparrow.

An additional 21 green listed species were recorded. Juvenile birds of several species were observed on the lands in 2021 including, dunnock, blackcap, whitethroat, magpie, Goldfinch, Bullfinch and Reed Bunting however these young birds were not very recent fledglings, may have been out of the nest for a number of weeks and may have moved to the lands from breeding sites elsewhere in 2021.

Common (viviparous) lizard, common frog and smooth newt were not recorded during the site walkover surveys. Overall the fields in the Phase 2 site are dry, with very few areas suitable for use by breeding amphibians (newts and frogs).

The site was assessed for the presence of butterflies and for the suitability of the habitats for butterfly abundance and diversity. The fields, dominated by unmanaged grassland are attractive to two species of butterfly: ringlet and meadow brown, both of which were recorded on the site. Both of these species benefit from the edges around pasture and value grasses, thistle (also attractive to painted lady) and bramble.

4 Overall ecological valuation of the site

4.1 Proposed development site

The proposed development site is not under any wildlife or conservation designation. Furthermore, no rare, threatened or legally protected plant species, as listed in the *Irish Red Data Book 1 – Vascular Plants (Curtis & McGough, 1988)*, the *Flora Protection Order*, 2015 or the *EU Habitats Directive*, are known to occur within the site. None were recorded during any of the site visits undertaken to date, ncluding hairy St. Johns-wort.

No evidence of badgers or other protected large mammals was recorded on the site during any of the surveys undertaken at any time between 2019 and 2022. No bats have been recorded as roosting anywhere within the site and bat activity (i.e. commuting and foraging behaviour) is low at this site.

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 (unmanaged agricultural grassland).

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

Overall, the site proposed for development, primarily the mature hedgerows/tree lines, has local importance (higher 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)).

5 Potential impacts of the proposed development

5.1 Description of the proposed development

Quintain Developments Ireland Limited is applying for planning permission for development on 2 No. sites separated by the permitted Tandy's Lane Phase 1 Development (SDCC Reg. Ref. SDZ19A/0011) with a total site area of c. 10.24 hectares at Tandy's Lane, in the townlands of Doddsborough and Finnstown, Adamstown, Lucan, Co. Dublin. The western site (8.06 hectares) is generally bounded to the west by Adamstown Boulevard, to the north by Adamstown Drive (L1030), to the east by the Tandy's Lane Phase 1 Development which is currently under construction (SDCC Reg. Ref. SDZ19A/0011) and undeveloped lands, and to the south by Tandy's Lane which links Adamstown Boulevard with Adamstown Park Road. The eastern site (2.18 hectares) is generally bounded to the west / north-west by the permitted Tandy's Lane Phase 1 Development, to the east by Adamstown Park Road and to the south by Tandy's Lane.

This application is being made in accordance with the Adamstown Planning Scheme 2014, (as amended) and relates to a proposed development within the Adamstown Strategic Development Zone Planning Scheme. The lands are located within the Tandy's Lane Village Development Area.

The development will principally consist of: the construction of 352 No. residential units (terraced, semi-detached and detached) comprising 253 No. two storey houses (15 No. two bed units and 238 No. three bed units ranging in size from c. 86 sq m to c. 118 sq m) and 99 No. three storey houses (18 No. three bed units and 81 No. four bed units and ranging in size from c. 147 sq m to c. 189 sq m). The total gross floor area of the development is c. 43,272 sq m.

The development will also comprise the provision of 2 No. vehicular accesses from Adamstown Boulevard, 1 No. vehicular access from Adamstown Drive (L1030), 2 No. vehicular accesses from Adamstown Park Road and 2 No. vehicular accesses from Tandy's Lane; vehicular connections will also be provided to permitted roads in Tandy's Lane Phase 1; internal routes; 535 No. car parking spaces including on-curtilage and off-curtilage spaces; bicycle parking; bin storage; plant; ESB Substations; boundary treatments; lighting; hard and soft landscaping; and all other associated site works.

5.2 Designated conservation areas –Appropriate Assessment

As previously stated, the potential for any significant effects on European sites was considered and an Appropriate Assessment Screening Report 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 of Phase 2 at Tandy's Lane Village, individually or in combination with another plan or project, will not have a significant effect on any European sites. This conclusion 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

The development will involve the removal of the internal fields, most of which are ecologically diverse. This loss is considered to be a probable permanent impact, significant at the site level. The loss of these fields will also reduce the feeding opportunities for bats.

The proposed development will result in the loss of three hedgerows/sections of hedgerow/tree line, including one hedgerow rated as a highly significant (heritage) hedgerow (the hedgerow located on the eastern side of the western site). This loss will be a permanent, significant impact at the local level. The loss of two shorter sections of moderately significant hedgerow (one in the western and one in the eastern site) is a permanent, significant impact at the site level.

The long-term landscaping design, which is focussed on biodiversity enhancement, will ensure that these potential impacts are reduced over time (refer to the accompanying landscape design and detailed Landscape Design Development report, prepared by Doyle + O'Troithigh Ltd).

A separate highly significant (heritage) hedgerow, located within the permitted Phase 1 development is outside the Phase 2 development area and is to be retained and protected as part of the overall landscaping strategy for the Tandy's Lane tile.

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 loss of areas of unmanaged meadows will result in a significant impact at the site level on lepidoptera and other insect groups. Illumination will also result in a permanent slight to moderate negative impact for feeding and commuting bats.

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, and no direct connections or pathways to the River Griffeen or River Liffey, the construction of the proposed development at Tandy's Lane Village Phase 2 could nevertheless 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 subject site straddles the natural catchment areas of both the Tobermaclugg Stream (North West) and the Griffeen Tributary (North East), which are tributaries of the River Liffey and lie to the west and northeast of the proposed development respectively. Runoff from the proposed site currently drains to both systems via the existing drainage channels/ditches located within and around the site and to the surface water drainage provided under the ADSZ Strategic Drainage, St Helen's Phase 1 (SDZ 17A/0002) and the Adamstown Park (Loop Road 1)

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 surface water drainage network under construction for the Phase 1 development has been designed to accommodate surface water from Phase 2. The western site catchment has been designed to discharge to the 750 mm ø surface water sewer in the north-south road dividing the two phases. This surface water sewer ultimately discharges into the existing 600mm ø public surface water sewer network located to the north in Adamstown Drive.

Once **operational** the surface water runoff from the eastern site of the subject development is proposed to discharge to the 450mm ø surface water sewer being constructed as part of Phase 1 before discharging into the 900mm ø public surface water sewer network in Adamstown Park.

As per South Dublin County Council guidelines and the SDCC Sustainable Drainage Explanatory, Design and Evaluation Guide surface water should be managed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) Regional Drainage Policies Volume 6, for New Developments and CIRIA documents. These documents specify that surface water run-off should be managed as close to its source as possible. Sustainable Urban Drainage Systems (SUDS) have been developed and are in use to alleviate the detrimental effects of traditional urban storm water drainage practice that typically consisted of piping run-off of rainfall from developments to the nearest receiving watercourse. Surface water drainage methods that take account of quantity, quality and amenity issues are collectively referred to as SUDS.

As part of the planning application for this development a full **flood risk assessment** has been prepared 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 to none.

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.

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

6.2 Habitats

All site clearance and landscaping works will comply with current legislative requirements and best practice. In particular, where trees are in proximity to the site and 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.

As it is proposed to effectively change the site from an agricultural 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 by Doyle + O'Troithigh Ltd. The planting will, over time, provide replacement habitat of benefit to bats and birds.

Although not proposed as a mitigation measure for the loss of the significant hedgerows in the site, the developer intends to translocate a section of the hedgerow in the north western hedge that contains crab apple (hedge H1 in Appendix 1), into the hedgerow retained as part of Phase 1.

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. This planting will, over time, provide replacement habitat of benefit to the bats and birds that will continue to use the site.

6.3 Fauna

6.3.1 Bats – recommendations

No bat roosts have been recorded at Tandy's Lane Village and 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). None of the hedgerows to be removed as part of the Phase 2 development contain any features likely to be used by bats. Nevertheless, should it be required, any mature tree scheduled for removal or which will require tree surgery will first be surveyed by a qualified bat specialist for the presence of bats. 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.

As part of the overall development of the Tandy's Lane Village tile a total of eight bat boxes (such as the Schwegler 2F and 1FF woodcrete boxes) are required to be erected, with advice from an experienced bat specialist, on mature trees (or on poles) as part of the Phase 1 development, currently under construction. These boxes are intended to provide additional roosting features as part of the overall mitigation strategy for the entire Tandy's Lane Village tile. Notwithstanding this, additional bat boxes will be provided, on trees or poles, in the two new pocket parks, as shown on the Landscape Masterplan drawings. A total of two boxes are required (Two 2F and two 1FF Schwegler bat boxes or equivalent).

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. Nevertheless, prior to installation, the final lighting design for the proposed development will be reviewed and an updated impact assessment prepared on bats from light spill from the proposed road, development and associated bridge development.

6.4 Water

6.4.1 Surface water

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.

As noted in Section 5.4 surface water discharging from the proposed development will be attenuated and Sustainable Drainage Systems (SuDS) have been developed to alleviate the detrimental effects of traditional urban

storm water drainage practices that typically consisted of piping runoff of rainfall from developments to the nearest receiving watercourse. Surface water drainage methods that take account of quantity, quality and amenity issues are collectively referred to as sustainable drainage systems; they are typically made up of one or more structures built to manage surface water runoff.

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 = 7.48l/s over the four discharge points) 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.

A Pre-Connection enquiry was submitted to Irish Water in 2019 for the entire Tandy's Lane Development Area 6. The application included 750 Domestic Units, 13583m2 Offices and Retail Space and a 500 Pupil School. Subsequently, the Irish Water Confirmation of Feasibility Letter was received on the 31st of October 2019 with Ref CDS19007055.By providing a Confirmation of Feasibility Letter, Irish Water has confirmed that, subject to a valid connection agreement being put in place, the proposed connection to the Irish Water networks can be facilitated.

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.

- 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 Phase 1 park;
- 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.

The bat boxes installed on the site (including those that are to be installed as part of the permitted Phase 1 development, in the retained hedgerow) will be checked annually for a period of five years post construction, to ensure that they continue to be accessible to these species.

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

7 Conclusion

The proposed Tandy's Lane Village Phase 2 development, which forms the second element of a wider Masterplan for the Tandy's Lane Village site, will result in the removal of a number of fields and hedgerows. These will be replaced with a new residential development and associated public open space and landscaped areas, including areas of ecologically sensitive planting and bat boxes. The removal of the hedgerows, which include a Highly Significant Heritage hedgerow, will have a significant permanent impact at the local scale. However, the residual impact of this loss will be minimised as a result of the comprehensive landscaping proposed, the key elements of which have been designed collaboratively between the project ecologist and landscape architect. The non-linear hedge, a key component of the landscaping strategy for the overall Tandy's Lane Village tile is protected and will be enhanced as part of the delivery of the permitted Tandy's Lane Village Phase 1 scheme, currently under construction.

There will be no impacts associated with any site designated for nature conservation as a result of the proposed development.

Appendix 1 Hedgerow survey report

TANDY'S LANE HEDGEROW SURVEY 2021

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 Tandy's Lane, Adamstown SDZ, Lucan to inform development planning at the site. A previous hedgerow survey was undertaken at this site by Denyer Ecology in 2019 and the results are included in Appendix A.

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 lands at Tandy's Lane Village. The site comprises former agricultural land with hedgerows along old field boundaries. The site is no longer used for agriculture and the fields are either abandoned and overgrown, or disturbed/ under construction (e.g. roads). Some hedgerows visible on earlier aerial photography or 1st edition O.S. maps have been removed in part or full.

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.

Prior to the 2019 and 2021 field surveys, recent aerial photography was examined to map possible extant hedgerows. Historic OS mapping was also used to determine the contiguous lengths of hedgerow for survey. Nine potential hedgerows were identified prior to the 2018 survey at Tandy's Lane Village. Two of these hedgerows had been removed (one on the southern boundary and one on the northern boundary) prior to 2019; an additional hedgerow comprised of mainly planted ornamental species and one (hedgerow H7) had only a small remnant extant portion on the southern boundary (the western part had been removed). There were therefore 6 surveyed hedgerows in 2019 (Figure 2.1). One of these (H5) was not within the 2021 survey area and the remaining section of H7 had been removed as part of the construction of the Tandy's Lane Road. Therefore, four hedgerows were surveyed in 2021 (H1, H2, H3 and H4) (Figure 2.2).

The survey comprised walking both sides of each hedgerow (where accessible) 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 a small number of locations along the hedgerow, as some of the hedgerows are 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 Figures 2.1 and 2.2.

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.
- 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 A. 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. 2019 surveyed hedgerows and location of 30m survey sections

RGB Aerial Photography - © Bluesky Geospatial Limited

Figure 2.2. 2021 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 (from 2019 and 2020) 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. H7 had been removed since 2019 and is included in Table 3.1 for reference only; it is not included in Figure 3.1. It is outside the study site.

Table 3.1. Summary of hedgerow survey and evaluation

ID	Internal/ boundary[1]	Appraisal Score 2019[2]	Appraisal Score 2021[2]	Hedgerow Significance	Condition Assessment[3]
H1	Internal	12	12	Moderately significant [But note that Crab Apple, a locally rare native species, is present in this hedge, which increases its overall value]	Unfavourable Scores 19/24 overall, but condition unfavourable as there is a gap >5m.
H2	Internal	14	14	Highly significant (**Heritage Hedgerow**). Scores <16 in all appraisal categories but scores a 4 in the Species Diversity Significance category.	Favourable Scores 17/24 overall despite recent cutting of hedgerow.
H3	Internal	22	22	Highly significant (**Heritage Hedgerow**). Scores >16 in all appraisal categories; scores a 4 in Historical significance category; a 4 in Species Diversity Significance and a 4 in the Structure, Construction & Associated Features as it is associated (historically) with a stream (Laraghcon Stream).	Unfavourable Scores 20/24 overall, but there is a gap >5m, recent earthworks/ ploughing to the base of the hedge and locally dominant ruderal species e.g. *Urtica dioica*. There appears to be some impact of Ash dieback.
H4	Internal	15	15	Moderately significant	Unfavourable Scores 16/24 overall, but over 25% of the canopy is dominated by Ivy.
H7	Boundary	0	13	2021 – n/a as hedgerow removed 2019 - Highly significant (**Heritage Hedgerow**). Scores <16 in all appraisal categories but scores a 4 in Historical significance category as it is associated with a townland boundary.	2021 – n/a as hedgerow removed 2019 - Unfavourable Scores 20/24 overall but unfavourable as there is ploughing to the base of the hedge on the S side and locally on the N side. This hedgerow is a remnant of a much longer hedgerow which has been removed for road construction.

[1]Internal hedgerow or boundary hedgerow in relation to the survey area
[2]Maximum possible score = 40
[3]Maximum possible score = 24

Figure 3.1. Map showing Hedgerow Significance (2021)

RGB Aerial Photography - © Bluesky Geospatial Limited

3.2 Summary

Four extant hedgerows were surveyed within the project site. Two internal hedgerows were ranked as being **Highly significant (Heritage Hedgerows)**:

- H2: (high diversity of woody species);
- H3 (associated with a townland boundary, non-linear, high diversity of woody species and formerly associated with a stream)

[Hedgerow H7 (associated with a townland boundary) had been assessed as being a **Highly significant (Heritage Hedgerow)** in 2019 but had been removed prior to the 2021 survey as part of the construction of the permitted Tandy's Lane Road. The remaining hedgerows were ranked as **Moderately Significant**. Hedgerow H1 has Crab Apple (locally rare) and this is to be translocated within the site. Hedgerow H3 is the most significant hedgerow within the site.

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HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Tandy's Lane hedgerow survey 2021	**Hedgerow/ treeline no.:** H1
Survey date: 26/09/2019 & 09/09/2022	**Fossitt:** WL1

Hedgerow description:

An internal hedgerow running approximately E to W across the site. There is grassland to the south and north of the hedgerow which appears to be currently unmanaged and has moderate diversity. The hedgerow has been cut in the past few years. No mature trees present, but the stumps of cut trees show that these were likely to have been present prior to cutting. There is a dry ditch on the south side of the hedgerow, which has been recently cleared of vegetation. The hedgerow has a diverse woody species flora but there is little typical hedgerow ground flora, presumably due to previous shading by the hedgerow and past field management. Nutrient-rich indicator species *Urtica dioica* and *Rumex obtusifolius are* locally abundant on northern side of hedgerow.

2021 update

Crab Apple *Malus sylvestris* was confirmed in 2021. This had been recorded in the 2019 survey but had had no flowers or fruit to confirm the identification. Fruit was present in 2021. The hedgerow was taller in 2021 (it had been recently pruned in 2019) and the vegetation was denser. The condition assessment has been updated to reflect the better condition.

Photo 1.1. Hedgerow H1 (view to W) 2019

Photo 1.2. Hedgerow H1 (view to W) 2021

Favourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Alnus glutinosa			*Prunus padus*		
Betula pendula			*Prunus spinosa*		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
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
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica (hybrid)			*Sorbus aria*		
Malus sylvestris	x	x	*Sorbus hibernica*		
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		
Populus nigra			*Ulex europaeus*		
Populus tremula			*Ulmus glabra*	x	x
Prunus avium			*Ulmus procera*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
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			*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:
			3	
	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
			3	
Ground Flora Significance				
Dominated by ruderal species* - nettles/ docks/ thistles/ cleavers				
-				
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
		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
Other factors of significance				
				Total Significance Score = 12

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
			2	
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
			2	
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
	0			
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)
				19
				Total Condition Assessment Score = 19

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Tandy's Lane hedgerow survey 2021	**Hedgerow/ treeline no.:** H2
Survey date: 26/09/2019 & 09/09/2022	**Fossitt:** WL1

Hedgerow description:

An internal hedgerow running approximately N to S across the site. There is grassland to the east and west of the hedgerow which appears to be currently unmanaged and has moderate diversity. The hedgerow has been cut in the past few years. No mature trees present, but the stumps of cut trees show that these were likely to have been present prior to cutting. There is a deep dry ditch on the east side of the hedgerow, which has been recently cleared of vegetation. The hedgerow has a diverse woody species flora, with *Ulmus glabra* abundant in the S and *Crataegus monogyna* abundant in the N. There is little typical hedgerow ground flora, presumably due to previous shading by the hedgerow and past field management.

2021 update

The hedgerow was taller in 2021 (it had been recently pruned in 2019) and the vegetation was denser. However, this did not change the condition assessment score. Red Currant *Ribes rubrum* was present in 2021 and there was an increase in the cover of *Prunus avium* at the base of the hedge.

Photo 2.1. Hedgerow H2 (view to N) 2019

Photo 2.2. Hedgerow H2 (view to N) 2021

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	x	x	*Salix aurita*		
Fraxinus excelsior		x	*Salix caprea*		
Hedera helix (H. hibernica)	x	x	*Salix cinerea oleifolia*		
Ilex aquifolium	x	x	*Salix pentandra*		
Juglans regia			*Salix triandra*		
Ligustrum vulgare	x	x	*Sambucus nigra*		
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica (hybrid)			*Sorbus aria*		
Malus sylvestris			*Sorbus hibernica*		
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		
Populus nigra			*Ulex europaeus*		
Populus tremula			*Ulmus glabra*	x	x
Prunus avium	x	x	*Ulmus procera*		
Prunus cerasus			*Viburnum opulus*		

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
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:
			3	
	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
				4
Ground Flora Significance				
Dominated by ruderal species* - nettles/ docks/ thistles/ cleavers				
-				
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
		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
		2		
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
Other factors of significance				
				Total Significance Score = 14

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
			2	
Width	<1m	1 - 2m	2 - 3m	>3m
			2	
Profile	Remnant; Derelict	Wind-shaped; Losing base structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
			2	
Basal density / porosity to light of woody shrubs	Open	Semi-translucent	Semi-opaque	Opaque / Dense
			2	
Continuity				
% gaps	>10%	5-10%	<5%	Continuous
			2	
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 = 17

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Tandy's Lane hedgerow survey 2021	**Hedgerow/ treeline no.:** H3
Survey date: 26/09/2019 & 09/09/2022	**Fossitt:** WL1

Hedgerow description:

A mature, non-linear internal hedgerow running approximately SW to NE across the site. There is grassland to the east and west of the hedgerow which appears to be currently unmanaged and has moderate diversity. There has been some dumping/ earthworks on the eastern side of the hedgerow and nutrient-rich indicator species *Urtica dioica, Cirsium arvense, C. vulgare* are locally frequent adjacent to the hedgerow. There is a deep dry ditch within the hedgerow, which is over 2 deep in the S part of the hedgerow where it links to Hedgerow H4. The Laraghcon Stream (a tributary of the Liffey) is shown on EPA mapping along the line of the hedgerow and on old OS mapping there appears to be a spring shown in the S part of the hedgerow. There is currently no water in the ditch, or signs that it has held water recently and the water source may have been impacted by development works in the vicinity.

The hedgerow has a highly diverse woody species flora, with some mature oaks. There is little typical hedgerow ground flora, presumably due to previous shading by the hedgerow and past field management.

2021 update

The hedgerow was intact but there was a fence along the western side which reduced survey access from that side. The canopy appeared to have less cover and it may be that there has been some Ash dieback in the this hedgerow. There was spoil dumped at the southern end of the hedgerow.

Photo 3.1. Hedgerow H3 (view to N) 2019

Photo 3.2. Hedgerow H3 (view to NW) 2021

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*	x	x
*Clematis vitalba**			*Quercus robur*	x	x
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	x	x	*Salix aurita*		
Fraxinus excelsior	x	x	*Salix caprea*		x
Hedera helix (H. hibernica)	x	x	*Salix cinerea oleifolia*		
Ilex aquifolium	x	x	*Salix pentandra*		
Juglans regia			*Salix triandra*		
Ligustrum vulgare	x	x	*Sambucus nigra*		x
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica (hybrid)			*Sorbus aria*		
Malus sylvestris			*Sorbus hibernica*		
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Populus nigra			*Ulex europaeus*		x
Populus tremula			*Ulmus glabra*		
Prunus avium	x	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	Hedgerow	Species	30m strip	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	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	*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		x			
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:
				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				
-				
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
			3	
		Dry Ditch	Wet Ditch / Drain	Stream / River
		2		(4)*
		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				
*The Laraghcon Stream (a tributary of the Liffey) is shown on EPA mapping along the line of the hedgerow and on old OS mapping there appears to be a spring shown in the S part of the hedgerow. There is currently no water in the ditch, this may have been impacted by development works in the vicinity.				
				Total Significance Score = 20-22

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
			2	
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
	0			
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)
	0		3	
				Total Condition Assessment Score = 20

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Tandy's Lane hedgerow survey 2021	**Hedgerow/ treeline no.:** H4
Survey date: 26/09/2019 & 09/09/2022	**Fossitt:** WL1

Hedgerow description:

An internal hedgerow running approximately NW to SE across the site. There is grassland to the north and south of the hedgerow which appears to be currently unmanaged and has moderate diversity. The hedgerow has been cut in the past few years with few mature trees remaining. The stumps of cut trees show that these were likely to have been frequent prior to cutting. There is a deep dry ditch within the hedgerow, which links to Hedgerow H3. The hedgerow has a moderately diverse woody species flora. There is little typical hedgerow ground flora, presumably due to shading by the hedgerow and past field management.

2021 update

The hedgerow was taller in 2021 (it had been recently pruned in 2019) and the vegetation was denser. However, this did not change the condition assessment score.

Photo 4.1. Hedgerow H4 (view to N) 2019

Photo 4.2. Hedgerow H4 (view to N) 2021

Favourable tree, shrub and woody climber species

Species	30m strip	Hedgerow	Species	30m strip	Hedgerow
Alnus glutinosa			*Prunus padus*		
Betula pendula			*Prunus spinosa*		
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	x	x	*Salix aurita*		
Fraxinus excelsior	x	x	*Salix caprea*		
Hedera helix (H. hibernica)	x	x	*Salix cinerea oleifolia*		
Ilex aquifolium	x	x	*Salix pentandra*		
Juglans regia			*Salix triandra*		
Ligustrum vulgare	x	x	*Sambucus nigra*	x	x
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica (hybrid)			*Sorbus aria*		
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).

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

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	x	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	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			*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:
			3	
	Past evidence of laying or coppicing		Non-linear (excluding roadside)	
	1			
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				
-				
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
		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
		2		
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
		2		
Other factors of significance				
				Total Significance Score = 15

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
			2	
Width	<1m	1 - 2m	2 - 3m	>3m
			2	
Profile	Remnant; Derelict	Wind-shaped; Losing base structure	Boxed / A-shaped; Straight sided	Overgrown; Top heavy/ undercut; Outgrowths at base
			2	
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%			
	0			
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 = 16

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

Site name: Tandy's Lane hedgerow survey 2021	**Hedgerow/ treeline no.:** H7
Survey date: 26/09/2019 & 09/09/2022	**Fossitt:** WL1

Hedgerow description:

A small remnant section of boundary hedgerow running approximately NW to SE on the southern boundary of the site. There are roads on both sides of the hedgerow. This hedgerow is part of the townland boundary along Tandy's Lane. It was previously was linked to Hedgerow H3 (prior to construction of the new road between the hedgerows. Mature trees are frequent. There is a dry ditch which is occasionally visible on the south side of the hedgerow; this is shaded and mainly dominated by *Hedera hibernica*. The hedgerow has a moderately diverse woody species flora. There is little typical hedgerow ground flora, presumably due to shading by the hedgerow and past field management.

2021 update

Hedgerow removed (it is outside the Tandy's Lane Village Phase 2 boundary). Data in tables below refers to 2019 data.

Photo 7.1. Hedgerow H7 (view to SE) 2019

Photo 7.2. Hedgerow H7 (view to SE) 2021

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		x	*Sambucus nigra*		x
Lonicera periclymenum			*Solanum dulcamara*		
Malus domestica (hybrid)			*Sorbus aria*		
Malus cf *sylvestris***			*Sorbus hibernica*		
Myrica gale			*Sorbus aucuparia*		
Pinus sylvestris			*Taxus baccata*		
Populus nigra			*Ulex europaeus*		
Populus tremula			*Ulmus glabra*		
Prunus avium			*Ulmus procera*		
Prunus cerasus			*Viburnum opulus*		
Prunus domestica	x	x			

*Not included in original species list by Foulkes et al. (2013); **No flowers or fruit present so not possible to confirm.

HEDGEROW APPRAISAL AND CONDITION ASSESSMENT

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	x	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	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	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:
				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				
-				
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 species			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
		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
0				
Landscape Significance				
	Wind shaped	Mature Hedgerow Trees		Area covered by Landscape designation
		2		
Other factors of significance				
				Total Significance Score = 13

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
			2	
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
				3
Specific gaps	Individual Gap > 5m	Individual gap <5m	No gaps	No gaps
				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
				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%			
	0 (On N side)			
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)
	0			
				Total Condition Assessment Score = 20

Appendix 2 Bird survey report

Late Season Breeding Bird Survey Tandy's Lane Village Lands,

Adamstown, Lucan,

Dublin

John Fox

August 2021 and March 2022.

Fig 1. Lands at northwestern corner of site. **(Photo. J Fox)**

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Summary:

On the 10th of August 2021, and 23rd March 2022 visits to the lands known as Tandy's Lane Village, Adamstown, Lucan, Co Dublin were made. The content of this report is based on these two visits.

The lands were walked slowly over approximately five hours. The route walked focused primarily on existing hedge rows, areas of scrub, meadow and any mature trees. Bird Species that were heard or seen were recorded, their position noted, and a breeding status if any, assigned to them.

Data from the visit were recorded and the approximate positions for the birds as seen or heard were plotted on aerial photographs. Approximate numbers of birds present and their breeding status if any were recorded.

A species table and distribution maps for the lands were prepared.

A total of 28 common bird species of Ireland were recorded on the lands, of which only one was confirmed as breeding. A single species of high conservation concern was recorded. Six species of

medium conservation concern were recorded. The remaining 21 species recorded were of least conservation concern. Several of the species recorded were seen in flight or foraging only and most probably were not breeding on the site at the time of the visits.

Introduction:

This survey of the breeding birds at Tandy's Lane Village Lands, Adamstown, Co Dublin, was commissioned by Brady Shipman Martin in August 2021. The survey was undertaken on 10th of August 2021 and 23 March 2022.

The survey aim was to get a 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 fig 3.

Study area:

The site is approximately 10.2 hectares in area and is of mixed habitat types. Habitats present include, bare ground, recolonising bare ground, dry meadow and grassy verges, hedgerow, scrub, man-made structures and some artificial hard surfaces.

Fig 2. View over lands from southern boundary. **(Photo J Fox)**

The lands are bounded on the south, west and part of the east and north by recently constructed roads. The remaining boundaries abut an active building site situated mainly to the north-east of the lands. Much of the land is covered by dry meadows with swards of more than a metre in height in many areas. There is a mature zig zagging hedge row along the northern edge of the south-eastern areas of the lands. A straight less mature hedge runs along much of the eastern boundary of the site

from north to south and another hedge that runs from east to west in the north-western part of the site.

The road boundaries to the lands are by and large fenced and devoid of hedging.

There are areas of recolonising disturbed ground in the south-eastern corner of the land, with some areas of hard standing and associated manmade structures along the northern boundary and the north-western corner of the lands. Some of the land in the southeastern corner of the site are now under construction and surrounded by an earth berm.

The lands in general are flat.

Fig 3. Tandy's Lane Village Lands. Overall site aerial photograph. Red line encloses approximate extent of lands surveyed,

Methodology:

The site was visited on two occasions. On 10th August 2021 and 23rd of March 2022. Both visits were during early to mid-morning. The visits were undertaken as early in the morning as site access allowed. The early visits coincided with the period when birds tend to be most active and therefore most easily observed and recorded.

No visits were made after dark due to restrictions on site access outside working hours and thus no nocturnal species were recorded during this survey.

All observations took place when weather conditions were suitable for surveying. All species encountered were recorded. Any breeding status was determined by observation of bird behaviour against a series of standardised behavioural indicators. It must be stated however that these behavioural indicators are less relevant to a breeding bird survey carried out at these points in the breeding season. Binoculars (42x10) were used throughout each survey period.

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 lands were entered from the building site entrance on the northern boundary and from a gateway also on the northern boundary but to the west of the building site entrance. All areas of the lands were walked slowly. 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 hedge rows and through areas of scrub and meadow 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.

Results:

A total of 28 bird species were recorded on the Tandy's Lane Village Lands.

One red listed species, Meadow Pipit, was observed carrying food which was confirmed to be breeding in an area of meadow to the southwest of the lands in 2021.

Six amber listed species were observed of which two were probably breeding or had bred on the lands in 2021, Barn Swallow and Skylark. A Barn Swallow nest was found in the derelict sheds along the northern boundary but was not obviously active during the visits. A single Skylark was flushed from the meadow in the southwestern area and was seen to be behaving in an agitated manner confirming it to be a probable breeder in 2021. Two Skylarks were seen in the same area in 2022 including one singing bird in flight. The remaining amber listed species possibly bred on the lands earlier in the year or may breed later in 2022. Three of the amber listed species from 2021 were not recorded in 2022. They were Barn Swallow, House Martin and House Sparrow.

An additional 21 green listed species were observed none of which could be confirmed breeding. Juvenile birds of several species were observed on the lands in 2021 including, Dunnock, Blackcap, Whitethroat, Magpie, Goldfinch, Bullfinch and Reed Bunting however these young birds were not very recent fledglings, may have been out of the nest for a number of weeks and may have moved to the lands from breeding sites elsewhere in 2021.

Fig 4. Lands to northwest of site looking towards active building site. **(Photo. J Fox)**

Small flocks of foraging Goldfinches were noted in the North-western corner of the lands which included adult and juvenile birds in 2021. No Goldfinches were observed in 2022

Table 1. Tandy's Lane Village, Adamstown, Co Dublin. Bird species identified, numbers present and breeding status, 2021 & 2022.

Common Name	BTO Code	Species	Breeding Status	Numbers Present
Malard	MA	*Anas platyhynchos*	Possible Breeding	1 male 1 female '22
Woodpigeon	WP	*Columba palmubus*	Possible Breeding	3 birds 2021 11 adults 2022
Collared Dove	CD	*Streptopelia decaocto*	Possible Breeding	1 bird 2021
Skylark	S.	*Alauda arvensis*	Probable Breeding	1 bird 2021 2 adult 1 singing '22
Barn Swallow	SL	*Hirundo rustica*	Probable Breeding	1 inactive nest 2021
House Martin	HM	*Delichon urbica*	Non Breeding	2 Fly over 2021
Meadow Pipit	MP	*Anthus pratensis*	Confirmed Breeding	1 pair 2021
Pied Wagtail	PW	*Motacilla alba*	Possible Breeding	1 adult 2022
Wren	WR	*Troglodytes troglodytes*	Possible Breeding	3 - 4 Singing 2021 6 singing 2022
Dunnock	D.	*Prunella modularis*	Probable Breeding	1 singing 1 juv. 2021 7 adult 4 singing '22
Robin	R.	*Erithacus rubecula*	Possible Breeding	3 adult 1 singing '21 4 singing 2022
Stonechat	SC	*Saxicola torquata*	Probable Breeding	1 adult + 1 juv 2021 1 adult 2022
Blackbird	B.	*Turdus merula*	Probable Breeding	3 adult 2 juv. 2021 4 adult 2022
Blackcap	BC	*Sylvia atricapilla*	Possible Breeding	1 Juv. 2021
Whitethroat	WH	*Sylvia communis*	Possible Breeding	1 adult 2021
Great Tit	GT	*Parus major*	Possible Breeding	1 adult 2021 3 adult 2022
Blue Tit	BT	*Parus caeruleus*	Possible Breeding	2 adult 1 juv. 2021 3 adult 2022
Magpie	MG	*Pica pica*	Possible Breeding	1 juv. 2021 1 adult 2022
Jackdaw	JD	*Corvus monedula*	Possible Breeding	1 Fly over 2021
Hooded Crow	HC	*Corvus corone cornix*	Possible Breeding	4 adult 2021 1 adult 2022
Raven	RN	*Corvus corax*	Seen close to site only	1 bird 2021
Starling	SG	*Sturnus vulgaris*	Possible Breeding	6 adult 2 juv. 2021 1 adult 2022
House Sparrow	HS	*Passer domesticus*	Possible Breeding	1 bird 2021
Linnet	LI	*Carduelis cannabina*	Probable Breeding	2 adults 2 juv. 2021 10 adults 2021

Goldfinch	GO	*Carduelis carduelis*	Probable Breeding	10 adult 5 juv 2021
Greenfinch	GR	*Carduelis chloris*	Possible Breeding	1 singing male 2022
Bullfinch	BF	*Pyrrhula pyrrhula*	Possible Breeding	1 juv. 2021
Reed Bunting	RB	*Emberiza schoeniclus*	Possible Breeding	1 singing 2022

Fig 5. Red and Amber Listed Bird species distribution map, Tandy's Lane lands, Adamstown 2021. (For BTO Codes see Table 1).

Fig 6. Amber Listed Bird species distribution map, Tandy's Lane lands, Adamstown 2022. (For BTO Codes see Table 1).

Discussion:

A breeding bird survey of these land and those now an active building site, was carried out in 2019 by the author of this report. At that time 29 species of common birds were recorded on those lands of which none were red listed species, eight were amber and 21 were green listed species. At that time ten bird species were confirmed to breed, including three amber and seven green listed species. The 2019 breeding bird survey was carried out during June and July and involved three visits, while this survey was undertaken in August 2021 and March 2022 involved two visits.

Much of the 2019 survey lands have altered significantly between 2019 and the present resulting in the loss of significant nesting habitat. A large portion of those lands are now an active building site inevitably producing an increased level of disturbance to the current survey lands.

It is worth noting that an updated list of Birds of Conservation Concern in Ireland has been published since the 2019 survey with 23 species newly red listed and seven previously green listed moving to the amber list. Just 4 have been added to the species green list.

The paragraphs above are an oversimplification of the changes to the BoCCI lists and to the habitats present then and now but supports the case that comparisons between the two surveys are not as meaningful as they might be.

The species encountered on the site during the recent surveys are all widespread common birds of Ireland. Most species observed are currently green listed as species of least conservation concern in Ireland. A single red listed species, of highest conservation concern, was found on the lands in 2021 and was confirmed to breed there at that time. Six amber listed species of medium conservation concern were also observed in 2021. None of those species were confirmed to breed while three probably did and 2 possibly did, with one species probably nonbreeding due to a lack of suitable nest sites.

An unoccupied Barn Swallows' nest was found in one of the ruined buildings towards the northern boundary of the lands

It should also be noted that many of the recently fledged birds found on the lands in 2021 may have come from nests outside the lands.

Fig 7. Meadow Pipit. Red listed species confirmed breeding on the lands. **(Photo J Fox.)**

Conclusion:

The surveys were carried out on 10th August 2021 and 23rd March 2022. This is outside the optimal period for undertaking breeding bird surveys, however 28 species, typical of the type of habitats present, were recorded on the lands and the surveys represent an accurate description of the avifauna of the site. Of these just one species was confirmed to breed, additionally a further 7 probably bred and finally another 18 possibly bred. The remaining 2 species most probably do not breed on the lands, but some may breed on lands, buildings or structures close to the site. The site is probably used by those species for foraging or hunting.

One red listed species was found on the land and was confirmed to breed there. Six amber listed species were recorded but none were confirmed to breed on the lands. A further 21 green listed species were also found on the lands but were not confirmed to breed there.

The areas of mature hedgerows are the habitats of most importance for the breeding birds present on the site, however the area of meadow to the southeast was where the only red listed species, Meadow Pipit, was detected and confirmed to breed. Any meadow cutting, 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 active nest sites before removal if they are to be removed.

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 Siskin and 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.

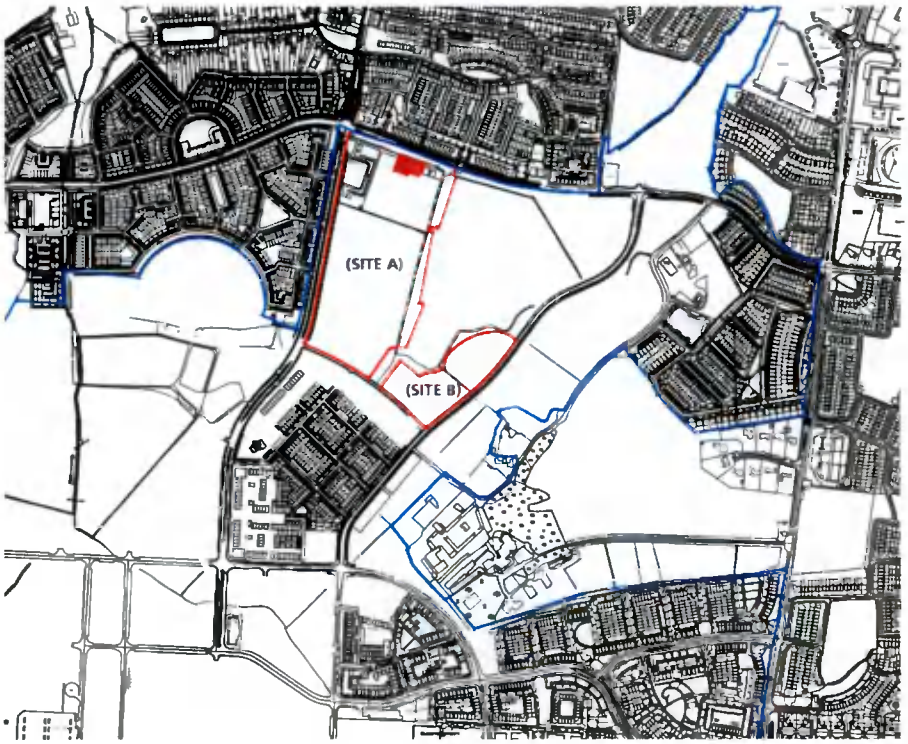
References:

- 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.
- Colhoun, K. and Cummins, S. 2013. Birds of Conservation Concern in Ireland 2014-2019. Irish Birds, 9: 523 - 544. Birdwatch Ireland, Kilcoole Co Wicklow.
- 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 Tandy's lane,

Phase 2 of the Adamstown SDZ Dublin



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Fionn Keeley M.Sc.

Maio, Tierworker, Kells Co Meath

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 of the species found to date and indeed all bat species that may remain undetected up to the present 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). On the east coast of Ireland, the most sensitive bat species is absent (lesser horseshoe bat) but there have been two records from south Leinster of the greater horseshoe bat (presumably having flown to Ireland from Wales).

The bat survey undertaken within the site at Tandy's Lane, Adamstown is drawing upon repeat visits to this site in 2019, 2020 and again in 2021. This provides a picture of the activity levels within the area where maternity roosts have been shown not to be present historically (i.e., in 2019 and 2020) and where roosts are more likely to be transitional roosts with lesser numbers of bats. The lands are close to the developed district of Lucan and the rapidly expanding Adamstown area in the vicinity of Dublin city where bat fauna is more greatly challenged and is therefore less common than throughout more vegetated areas of the island of Ireland. There is hedgerow and a number of emergent trees along hedgerow within the site, while there were previously a number of buildings which have been removed as part of the approved development of housing.

Construction and development create numerous changes to a site that usually lead to considerable 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 as noted above, the insects attracted by agricultural practices and preyed upon by bats.

Methodology

The site was examined visually for evidence of bat roosts over two dates 22nd and 24th September 2021 and by way of a night-time bat detector survey on 22nd September to 23rd 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 (EM3 and EMT – see below) 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. The trees in Phase 2 were examined prior to sunrise on 22nd September 2021 for returning bats. Two surveyors were present throughout the survey period.

The active bat detector survey was carried out on September 22nd to 23rd 2021 while the static monitor recorded within the site on 23rd to 24th September. The active survey was undertaken by two surveyors one commencing at the northern side of the hedgerow to the eastern end of the site and the other along the north-south hedge that runs to the western end of the above hedge. The trees were examined for approximately 1.5 hours at sunset and again for 1.5 hours prior to sunrise. Bat activity and any evidence of mergence or return to any tree was noted by the surveyors.

The static bat detector used in this assessment was a Songmeter Mini Bat and it was placed close to the tree line and hedgerow and remained in place for one full survey night.

Sunset on the night of the bat activity survey was at 19:23 hours and Sunrise was at 07:13. 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 were noted to be densely covered in ivy. These have low roost potential. No bats exited from or returned to any tree within the site and bat activity was very low prior to sunrise.

Three (soprano or common) pipistrelles were noted to be feeding in close proximity to each other at 19.44 hours at the midpoint of the east-west hedge on the north side. Activity was high over a 5-minute period. There was common pipistrelle activity near the west end of the hedge at 19.55 hours and common pipistrelle activity at the largest trees at 19.59 hours.

Pipistrelles were noted up to 20.23 hours, the last bat being noted east of the largest trees. In all, pipistrelles were present for less than an hour of the active survey. Most activity was at the largest trees with very limited bat activity anywhere else.

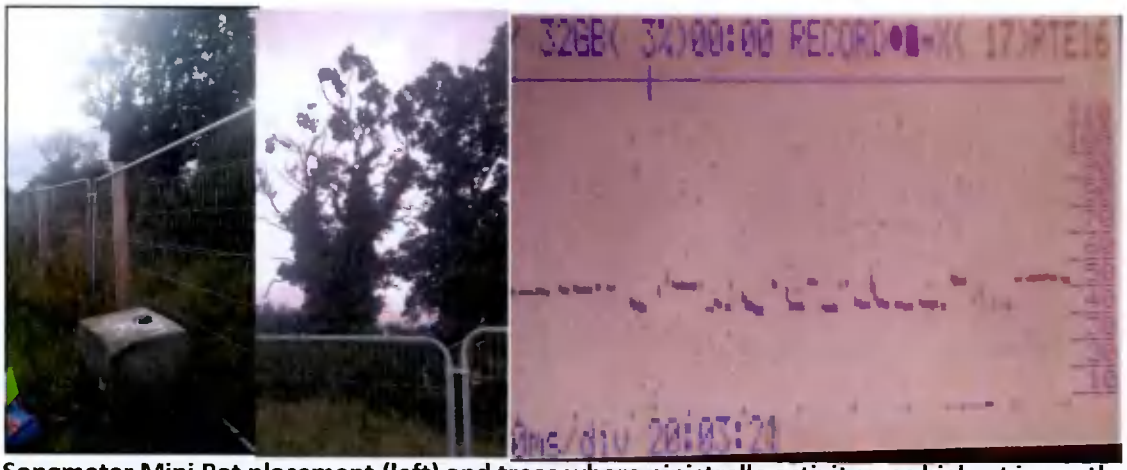
Leisler's bats were occasional with one noted at 20.16 hours near the middle of the central north-south hedge and again at 06.38 hours near the same area.

Overall, bat activity was low within the site during this assessment.

Summary of 2021 findings

Bat activity along the hedgerow 23rd to 24th September 2021- static monitor data											
Species	Hour of night 1	2	3	4	5	18	19	20	21	22	Grand Total
Leisler's bat	Number of passes per hour		2		1	1	1				5
Common pipistrelle			26	2			2	1	1		32
Soprano pipistrelle	1	1			1					1	4
Grand Total	1	1	28	2	2	1	3	1	1	1	41

No bat roosts were identified within the site. There are a small number of trees with dense ivy cover that offer low roost potential. Species of bat noted during the assessment: Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler's bat, (*Nyctalus leisleri)*.



Songmeter Mini Bat placement (left) and trees where pipistrelle activity was highest in south-eastern hedge (middle). Example of Echometer 3 screen showing common and soprano pipistrelles at the same time (right)

Proposed Phase 2 sites A and B at Tandy's Lane, Adamstown (refer to project documentation)

Impression of the site at Tandy's Lane following Proposed Development

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 and previous surveys in 2020 and 2019. 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 nights of survey, there were three species noted during the active surveys as noted in the Results section. This will be a permanent slight negative impact.

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 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.

Specific mitigation measures for the project proposed for these lands in 2020 and 2019 included the following and are still proposed:

(1) Trees which are ivy clad, have trunks over 30 cm diameter, or which have cracks or crevices must be checked for bats by an ecologist prior to felling. If bats are discovered at this stage, clearance operations must cease, and a bat specialist and the Conservation Ranger must be contacted.

(2) Where trees are being removed (including oak and ash trees within the site) these must be replaced by mature and semi mature trees nearby (refer to the accompanying Landscape Report and Masterplan prepared by Doyle + O'Troithigh).

(3) Two 2F and two 1FF Schwegler bat boxes with built-in timber panel bat boxes or equivalent must be put in place. These should be placed on trees or posts, at least 3 metres high, with a clear drop below (as bats need to drop to start their flight). These can be purchased from www.nhbs.com or other providers. Bat boxes should be placed in an unlit area.

(4). 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/wp-content/uploads/Pollinator-friendly-planting-code-temporary-draft.pdf

(5) All bats are sensitive to lighting. Dark skies areas shall be designated along treelines within the proposed development to allow commuting areas. The linear park within the permitted Phase 1 development must not be illuminated and shall be screened by vegetation. Existing vegetation should be retained in this area 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, designed by Sabre in collaboration with the wider team, 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) The linear park to be constructed adjacent to the proposed development shall be unlit.

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

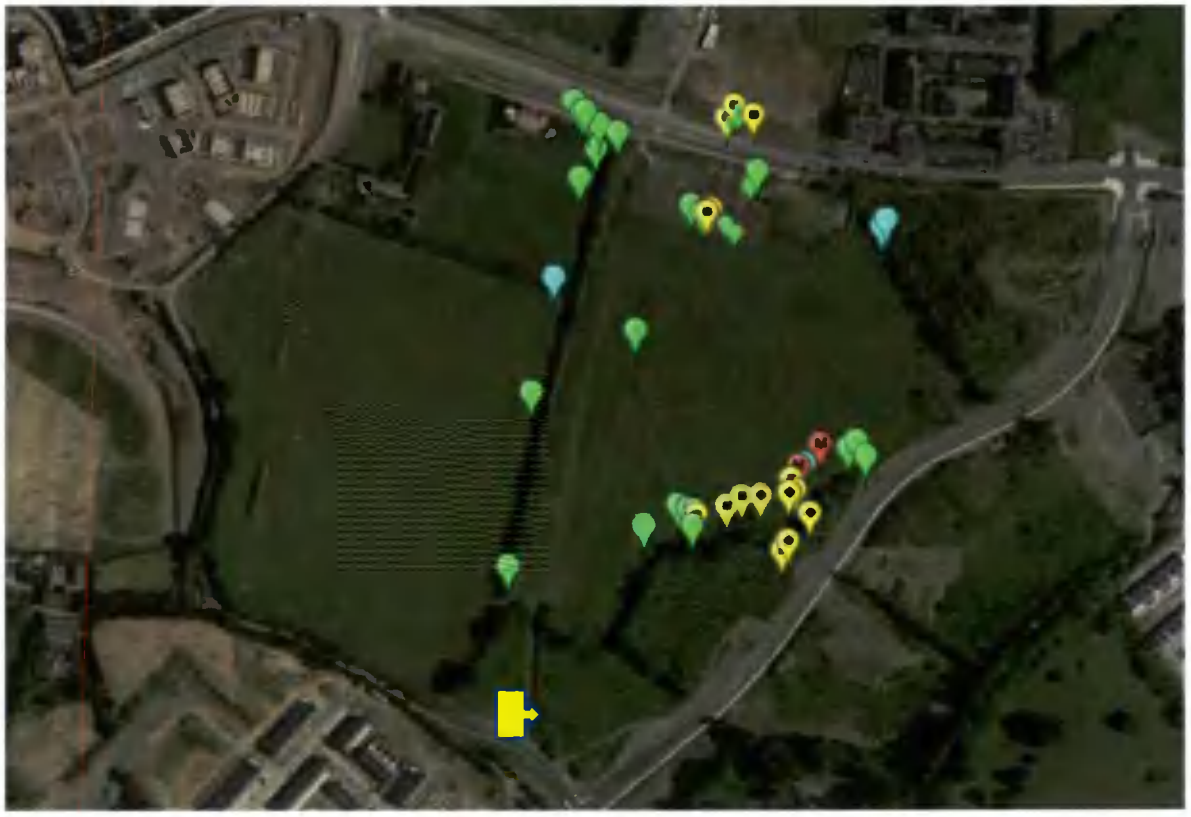
(8) Monitoring of the bat boxes shall take place within a year of the development being built, and the location of the bat boxes should be changed if they are unused, and their site is unsuitable.

Appendices

Summary of 2019 findings

Species noted: Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler's bat, (*Nyctalus leisleri*) and Natterer's bat (*Myotis nattereri*).

Bats were not found roosting in the trees or buildings in July 2019. The buildings were in poor repair and had limited potential for bat usage. Mature trees within the development were determined to have moderate to high potential for bat usage and these trees must be checked in the future prior to any felling. Trees along the former stream were an important feeding and commuting area for bats and feeding occurred here throughout the night.



2019 data

Bat signals noted on 1st to 2nd July 2019 at the Adamstown site at Tandy's Lane

Legend

Green paddle	Common pipistrelle	Blue paddle	Soprano pipistrelle
Yellow paddle	Leisler's bat	"M"	Natterer's bat
Yellow box	Location of SM2 from 22.45 hours to dawn. The monitor was outside the surviving shed up to 22.45 hours		

In 2019, 7 common pipistrelles flew along the stream by the mature trees before turning south east, across the road and into the field behind the site. It is likely there is a roost in this direction. 7 common pipistrelles were seen flying in this direction at 4.21 hours. A Leisler's bat was seen by the oaks at 4.26 hours, heading towards the road at 04.43 hours. No bats were seen around the buildings at dawn.

2020 data

There was repeat Leisler's bat activity especially shortly after sunset (yellow paddles). Common and soprano pipistrelle bat activity (green and blue paddles respectively) was less common than in 2019.

No bats emerged from or returned to the buildings. No trees were identified as active roosts at the time of survey.

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