



Parks & Landscape Services Section, Municipal Services Department

**Proposed Development of a Running Track  
& Associated Facilities at St. Thomas Estate,  
Tibradden Road, Rathfarnham, Dublin 16 in  
Proximity to a Protected Structure (St.  
Thomas House)  
PC/PKS/01/19**

**Appendix 6 – Ecological Impact Assessment**

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# **Ecological Impact Assessment**

Proposed Development of a Running track  
& Associated Facilities at St. Thomas Estate,  
Tibradden Road, Rathfarnham, Dublin 16

02 April 2019



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## Executive Summary

This Ecological Impact Assessment has been prepared by NM Ecology Ltd on behalf of Dún Laoghaire-Rathdown County Council (the applicant) as part of a planning application for a sports facility at Tibbradden Road, Rathfarnham, Dublin 16. The proposed development will consist of a synthetic running track, a multi-sports building, a new site entrance and car park, pedestrian / cycle paths, landscaping, and on-site surface water and foul water treatment facilities. The aim of this report is to identify, quantify and evaluate any potential impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna.

There are no designated sites within 2 km of the proposed development site, and no viable pathways for indirect impacts on distant designated sites. A stand-alone *Screening for Appropriate Assessment* report accompanies this application.

Habitats within the proposed development site include: improved agricultural grasslands, amenity grasslands, dry meadows and grassy verges, mixed broadleaved / conifer woodland, ornamental shrubs / gardens, treelines and hedgerows. The woodland is of local ecological value, and it will be retained and incorporated into the development. All other habitats are of negligible value, and their removal will have no ecological impact. No restricted invasive species (e.g. Japanese knotweed) were recorded. A short section of hedgerow will be removed, but it will be more than compensated by extensive tree planting throughout the site.

The dense foliage of trees and hedgerows may provide nesting opportunities for birds, and breeding opportunities for some protected mammals. Impacts on these species will be avoided by scheduling site clearance works for the non-breeding season (October – February, inclusive), or by commissioning a pre-construction survey by a suitably-qualified ecologist. A number of mature trees will need to be felled for safety reasons, some of which may be suitable for roosting bats, so these trees will be felled in a sensitive manner. Bat-sensitive lighting techniques will be incorporated into the lighting plan for the proposed development, to avoid or minimise impacts on foraging or commuting bats. A small badger sett is located approx. 15 m from a proposed pedestrian / cycle path, so there will be some limits on construction works in this area.

Subject to the successful implementation of these measures, it can be concluded that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

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# **1 Introduction**

## **1.1 Assessment brief**

The aim of this Ecological Impact Assessment (EclA) is to identify, quantify and evaluate the impacts of the proposed development on ecosystems and their components, including designated sites, habitats, flora and fauna. It has been prepared in accordance with the *Guidelines for Preliminary Ecological Appraisal* (2013) and the *Guidelines for Ecological Impact Assessment in the UK and Ireland* (2018), which are the primary resources used by members of the Chartered Institute of Ecology and Environmental Management (CIEEM).

The purpose of this document is to:

- Provide an objective and transparent assessment of the potential ecological impacts of the proposed development for all interested parties, including planning authorities and the general public
- Facilitate objective and transparent determination of the consequences of the development in terms of national, regional and local policies relevant to ecology
- Propose the steps will be taken to adhere to legal requirements relating to designated sites and legally protected species (CIEEM 2018).

Although the above guidelines provide a scientifically-rigorous framework for EclA, some processes also rely on the professional judgement of an ecologist, including survey design, the valuation of ecological features, and the characterisation of impacts. An outline of the author's experience, training and accreditation is provided in the following section, which support his competency to make such judgements.

## **1.2 Statement of authority**

All surveying and reporting was carried out by Nick Marchant, the principal ecologist of NM Ecology Ltd. He has an MSc in Ecosystem Conservation and Landscape Management from NUI Galway and a BSc in Environmental Science from Queens University Belfast. He is a member of the Chartered Institute of Ecology and Environmental Management, and operates in accordance with their code of professional conduct.

He has eleven years of professional experience, including eight years as an ecological consultant, one year as a local authority biodiversity officer, and two years managing an NGO in Indonesia. He provides ecological assessments for developments throughout Ireland and Northern Ireland, including wind farms, infrastructural projects (water pipelines, greenways, etc.), and a range of residential and commercial developments.

## 2 Methods

### 2.1 Scoping

The objective of this assessment was to identify any ecological features that would pose a constraint to the proposed development. It involved the following steps:

- Identification of designated sites within an appropriate zone of influence
- A walkover survey incorporating the following elements:
  - Classification and mapping of habitats
  - A search for rare or protected flora, and for any problematic non-native plant species (e.g. Japanese Knotweed)
  - A search for field signs of rare or protected fauna (e.g. badgers), and habitat suitability assessments for species that are shy, nocturnal or seasonal
- Valuation of ecological features, review of legal considerations, and selection of important ecological features
- Assessment of impacts on important ecological features and development of appropriate mitigation strategies

### 2.2 Data collection and walkover survey

A desk-based scoping study was carried out using data from the following sources:

- Plans and specifications for the proposed development
- Bedrock, soil, subsoil, ground water and surface water maps from the Geological Survey of Ireland webmapping service ([www.gsi.ie/mapping.htm](http://www.gsi.ie/mapping.htm)), and the Environmental Protection Agency web viewer (<http://gis.epa.ie/EPAMaps/>)
- Maps and details of designated sites from [www.npws.ie](http://www.npws.ie)
- A tree survey prepared by Arborists Associates Ltd (2019)

The following resources were used for the walkover surveys:

- Habitat surveys were carried out in accordance with the *Best Practice Guidance for Habitat Survey and Mapping* (Smith et al 2011), and using the classification system of *A Guide to the Habitats of Ireland* (Fossitt 2000)
- Flora were identified using *Webb's An Irish Flora* (8<sup>th</sup> edition, Parnell & Curtis 2012), *Grasses, Sedges Rushes and Ferns of the British Isles and northwestern Europe* (Rose 1989) and *The Vegetation Key to the British Flora* (Poland & Clement 2009). Nomenclature follows the plant crib of the Botanical Society of the British Isles (BSBI 2007). The abundance and extent of species is described using the DAFOR scale (Dominant, Abundant, Frequent, Occasional, Rare)

- Fauna surveys followed the methods outlined in the *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA 2006), with reference to other species-specific methods as appropriate.

Desktop data from internet resources was accessed in March and April 2019. Site inspections were carried out on the 13<sup>th</sup> and 28<sup>th</sup> of March 2019.

### 2.3 Valuation of ecological features

Based on the information collected during the desktop and walkover surveys, the ecologist assigns an ecological value to each feature based on its conservation status at different geographical scales (Table 1). For example, a site may be of national ecological value for a given species if it supports a significant proportion (e.g. 5%) of the total national population of that species.

**Table 1: The six-level ecological valuation scheme used in the CIEEM guidelines (2016)**

Ecological value	Geographical scale of importance
International	International or European scale
National	The Republic of Ireland or the island of Ireland
Regional	Leinster, and/or the east coast of Ireland
County	County Dublin
Local	The suburban / rural area around Tibbradden Road
Negligible	None, the feature is common and widespread

It is accepted that any development will have an impact on the receiving environment, but the significance of the impact will depend on the value of the ecological features that would be affected. The following is outlined in the CIEEM guidelines: *“one of the key challenges in an EclA is to decide which ecological features (habitats, species, ecosystems and their functions/processes) are important and should be subject to detailed assessment. Such ecological features will be those that are considered to be important and potentially affected by the project. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened and resilient to impacts from the development, and that will remain viable and sustainable.”*

For the purposes of this report we have only assessed impacts on ecological features that are of local value or higher (refer to Table 1), or those that receive legal protection. These features are termed ‘important ecological features’ and are listed in Section 4.6. Impacts on features of negligible ecological value (e.g. amenity grasslands) are not considered to be significant, so they are not included in the impact assessment.

## 2.4 Ecological Impact Assessment

Potential direct, indirect or cumulative impacts on ecological features can be described in relation to their magnitude, extent, duration, reversibility and timing/frequency, as outlined in the CIEEM (2018) guidelines. Depending on the type of impact and the sensitivities of the important ecological feature, the ecologist may determine that the impact would have a 'significant effect'. The following definitions are provided in the CIEEM guidelines: *"A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project". "For the purpose of EclA, a 'significant negative effect' is an effect that undermines biodiversity conservation objectives for 'important ecological features', or for biodiversity in general."* Where significant impacts are identified, measures will be taken to avoid, minimise or compensate for impacts (where possible). Based on these measures, the impact assessment will be repeated, and any residual impacts of the proposed development will be discussed.

## 3 Development proposals

### 3.1 Characteristics of the proposed development

The proposed development will consist of a regional multi-use sports facility, centred around an eight-lane synthetic running track (including field events), and a multi-sport building including an indoor hall. A new 6m-wide vehicular access point will be constructed on the Tibbradden Road, for which the adjacent field boundary walls will be removed and set back in order to improve sightlines. A short section of internal road will lead to a paved car-parking area, with associated bicycle parking, coach parking and set-down areas.

Two new pedestrian entrances are proposed – one to the east of the roundabout at the bottom of Kilmashogue Lane, and a second beside the existing access point to St. Thomas's House on the Tibbradden Road – which will provide safe access to the site from the R113 Roundabout at the southern end of Whitechurch Road. Combined pedestrian and cycle paths (surfaced in macadam and crushed gravel) will lead from these entrances to the sports facilities, also forming an extended jogging track around the perimeter of the site. The landscaping scheme will involve natural mounding, tree planting and soft landscaping. The proposals will involve no alteration to St. Thomas House (a protected structure) or to the associated outbuildings.

Floodlighting will be installed around the running track, in accordance with IAAF Track and Field Facilities Manual. The lighting design uses 4 no. 21m and 2no. 18m lighting poles, which will be fitted with LED lighting units and luminaires. Low energy LED lights will be placed in



the car park and access road on 6m high columns, while the perimeter of the building and perimeter pedestrian paths will be lit using surface mounted lights or bollard type lights.

Surface water from hard surfaces will be channelled to on-site soakaways, with no discharge to watercourses or local authority storm sewers. A foul sewer is not available in the local network, so foul water will be treated in an on-site packaged waste water treatment plant, and subsequently discharged to a percolation area located in the north of the site, as far as possible from the Whitechurch / Kilmashogue Stream.

### **3.2 Other developments in the surrounding area (potential in-combination effects)**

The proposed development site is located in a greenbelt / rural setting in the south of Dublin City, just outside the M50. It is included in zone B of the Dún Laoghaire-Rathdown County Council Development Plan 2016 – 2022, for which the planning objective is *“to protect and improve rural amenity and to provide for the development of agriculture.”* Most land to the south and west of the site is in agricultural use, and land to the east of the site is used as a golf course. There are some one-off rural houses along nearby roads, but the density of housing is very low. Overall, the surrounding area is unlikely to be under significant development pressure in the short to medium term.

Live and recently-approved planning applications in the vicinity of the site were reviewed on the online planning records of Dún Laoghaire-Rathdown County Council (CC). An application was submitted at the proposed development site in 2014 for sports facilities and a change-of-use for St Thomas' house (planning reference D14A/0284), but the application was withdrawn before a decision was made. Permission was granted to Stillorgan Rugby Football Club in 2017 for the construction of a clubhouse and three playing fields (planning reference D16A/0955) at a site approx. 100 m south-west of the proposed development site. The application included an Ecological Impact Assessment, Screening for Appropriate Assessment report (both by Openfield Ecological Services, 2017) and a bat report (Wildlife Surveys Ireland, 2017). No other live or recently-approved planning applications were identified in the vicinity of the proposed development site.

In conclusion, the area surrounding the proposed development site does not appear to be subject to significant development pressure. One planning application (the Stillorgan Rugby Club facility) was identified that could potentially act in combination with the proposed development to increase the scale of potential ecological impacts.

## **4 The Receiving Environment**

### **4.1 Environmental setting**

The site is located in a rural setting just outside the southern boundary of Dublin City. The site contains a protected structure (St Thomas' Estate) and associated outbuildings, surrounded by mature woodland and gardens, and three fields of improved grassland that are used for sheep grazing. The Whitechurch / Kilmashogue Stream flows through a wooded valley in the east of the landholding. The northern and western boundary of the site is formed by Tibbradden Road, the eastern boundary by the Whitechurch / Kilmashogue Stream, and the southern boundary by agricultural land.

The underlying bedrock is granite, which is a poor aquifer. Subsoils are granite till, although there is a pocket of limestone gravels underlying St Thomas' house and parts of the southern fields. Soils are deep and well-drained, derived mainly from acidic material. Overall, it is expected that most rainfall on the site would percolate to ground rather than flowing into surface water drainage features.

The closest surface water feature is the Whitechurch / Kilmashogue Stream, which runs along the eastern boundary of the site. It is located approx. 40 m from both the proposed sports building and the running track, and 25m from the pedestrian paths. The river is located in a wooded valley, and is approx. 10 – 15 m below the level of the southern fields. The stream is currently of moderate status (Water Framework Directive Status Assessments 2010-2015), due to poor biological and invertebrate status.

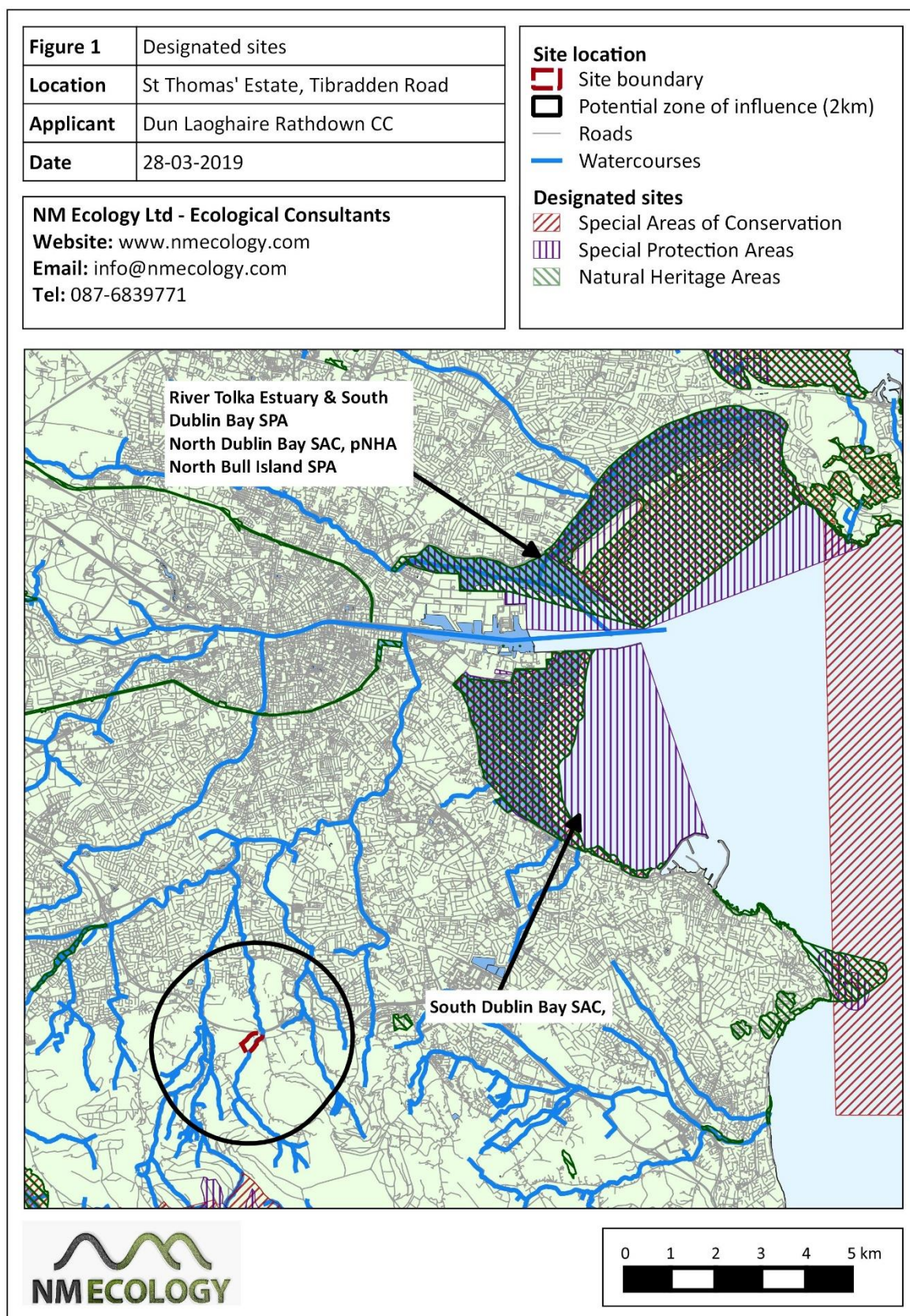
The stream flows north and meets the River Dodder at Rathfarnham, approx. 4 km north of the proposed development site. The River Dodder then flows north-east and meets the River Liffey at Grand Canal Dock a further 8.5 km downstream. The River Dodder is also of moderate status downstream of its confluence with the Whitechurch / Kilmashogue Stream.

### **4.2 Designated sites**

The proposed development is not located within or adjacent to any designated sites, so there is no risk of direct impacts. Potential indirect impacts were considered within a potential zone of influence of 2km<sup>1</sup>, but no designated sites were identified within this radius (see Figure 1).

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<sup>1</sup> For the purposes of this assessment indirect impacts on designated sites were considered within a potential zone of influence of 2km. This distance is considered to be proportionate to the relatively small scale of the proposed development and its lack of significant discharges to surface water.





There is a distant hydrological connection to some designated sites in Dublin Bay via the Whitechurch / Kilmashogue Stream, the River Dodder and the River Liffey. There are four Natura 2000 sites in Dublin Bay: the River Tolka Estuary and South Dublin Bay SPA, the North Bull Island SPA, the South Dublin Bay SAC, and the North Dublin Bay SAC (Figure 1). Potential impacts on Natura 2000 sites are addressed in a *Screening for Appropriate Assessment* report (prepared by CAAS Ltd) that accompanies this application. It was concluded that the proposed development will not have likely significant effects on any Natura 2000 sites.

#### 4.3 Phase 1 Habitat Survey

Habitats within the proposed development site were classified using *A Guide to Habitats in Ireland* (Fossitt 2000). A habitat map is provided in Figure 2.

##### Improved agricultural grassland (GA1)

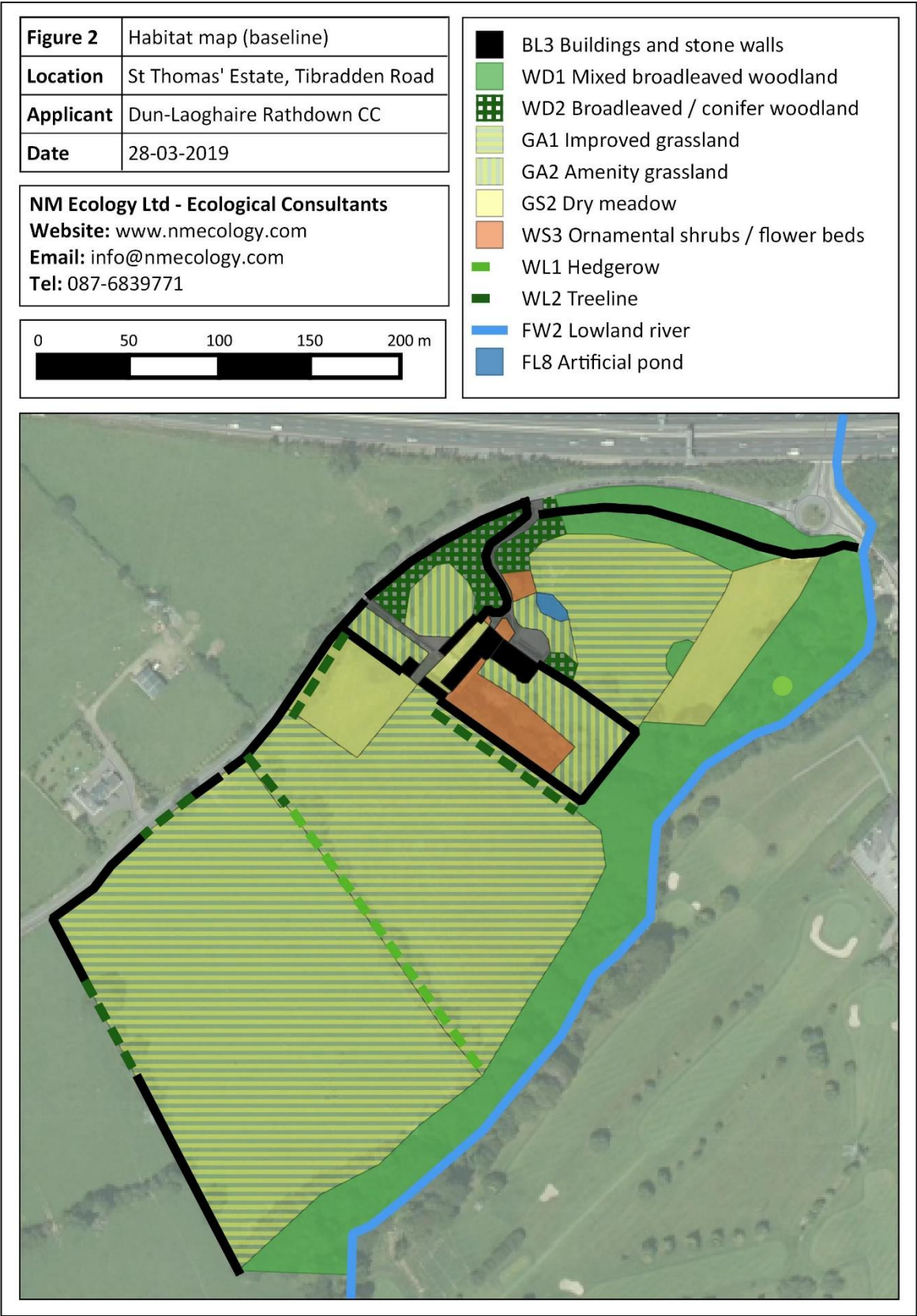
The focal area of the development would be in two fields of agricultural grassland, which are used as grazing pastures for sheep, and for the production of hay / silage. The dominant species is perennial rye-grass *Lolium perenne*, with frequent Yorkshire-fog *Holcus lanatus*, meadow foxtail *Alopecurus pratensis*, white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*, and occasional common bent *Agrostis capillaris*, cock's-foot *Dactylis glomerata*, dandelion *Taraxacum officinalis* ag., ribwort plantain *Plantago lanceolata*, field wood-rush *Luzula campestris*, creeping thistle *Cirsium arvense* and meadow buttercup *Ranunculus acris*. Nettle *Urtica dioica* and cock's-foot are locally abundant around field margins, with occasional Lords-and-Ladies *Arum maculatum* and lesser celandine *Ficaria verna*.

Agricultural grasslands are very common in the surrounding area, and the habitat within the proposed development site consists of species that are common and widespread throughout the country, so the habitat is considered to be of negligible ecological value

##### Amenity grassland (GA2)

Some lawns around St Thomas' house are managed for amenity purposes. The dominant species are common bent and/or perennial rye-grass, with frequent daisy *Bellis perennis*, creeping buttercup and germander speedwell *Veronica chamaedrys*, and occasional dandelion, lesser celandine and spear thistle *Cirsium vulgare*. Occasional red dead-nettle *Lamium purpureum* is present in unmown areas around the edges of lawns. Beds of daffodil *Narcissus pseudonarcissus* have been planted in some of the lawns.

Amenity grasslands are very common and widespread in the surrounding area, and all species are common and widespread throughout Ireland, so this habitat is considered to be of negligible ecological value.



### Dry meadows (GS2)

A patch of unmanaged grassland is located on sloping ground in the north-east of the site. It is dominated by cock's-foot, with frequent common bent, false oat-grass *Arrhenatherum elatius*, perennial rye-grass and Yorkshire-fog, with occasional dandelion, creeping buttercup, broad-leaved dock and white clover. Creeping thistle is locally-frequent.

A similar patch of ungrazed grassland is found in an enclosed section of the field to the west of St Thomas' house. It is dominated by false oat-grass, with frequent cock's-foot, common bent and lesser celandine, and occasional nettle, broad-leaved dock, dandelion and bramble *Rubus fruticosus* ag.

A narrow strip of grassy verge is also found along the side of the Tibbradden Road outside the boundary wall. It has abundant false oat-grass and cleavers *Galium aparine*, frequent cock's-foot and cow parsley *Anthriscus sylvestris*, and occasional lesser celandine, Lords-and-Ladies and Alexanders *Smyrnium olusatrum*.

Dry meadows are common and widespread in the surrounding area, as are all of the species listed above, so the habitat is considered to be of negligible ecological value.

### Mixed broadleaved woodland (WD1)

A patch of broadleaved woodland lines the valley of the Whitechurch / Killeshogue Stream, forming a linear corridor of up to 50 m in width. The woodland appears natural in character, but it is dominated by non-native tree species, so it does not meet the criteria for semi-natural woodland under the Fossitt 2000 classification scheme. Many of the trees are mature, but the woodland is not listed as ancient or long-established woodland under the National Survey of Native Woodlands 2003 – 2008 (BEC Consultants 2008).

The canopy layer has abundant beech *Fagus sylvatica*, frequent ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and spruce *Picea* sp, occasional European larch *Larix decidua* and Scots pine *Pinus sylvestris*, and rare horse-chestnut *Aesculus hippocastanum*. The shrub layer has occasional hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, elder *Sambucus nigra* and blackthorn *Prunus spinosa*. The ground layer has frequent lesser celandine, occasional ivy *Hedera hibernica*, nettle, pignut *Conopodium majus* and rare early dog-violet *Viola reichenbachiana*. A number of species are locally-abundant: ramsons *Allium ursinum*, common chickweed *Stellaria media*, germander speedwell and wood anemone *Anemone nemorosa*.

The canopy of the woodland is dominated by non-native tree species, but the shrub and ground layers support a number of plant species that are characteristic of native woodland. The trees may be of secondary value for a range of fauna (notably birds), and the habitat as a whole may provide foraging grounds for fauna such as badger, pine marten and red squirrel. The woodland is associated with a watercourse, and provides a linear ecological

corridor between the Dublin mountains and suburban parks such as Marlay Park and the grounds of Columba's College. For these reasons, the woodland is considered to be of at least local ecological value.

#### Mixed broadleaved-conifer woodland (WD2)

Some woodland has been planted around the entrance of St Thomas' house, forming a less-natural habitat than described above. The canopy consists of non-native conifers (including cedar, cypress, larch and fir trees), mixed with frequent beech trees and occasional horse-chestnut and aspen *Populus tremula*. The ground layer is typically quite sparse underneath the conifers, consisting of frequent ivy, occasional bramble, and few other species. Under broadleaf trees there is frequent cow parsley, occasional bluebell *Hyacinthoides non-scripta* and Lords-and-Ladies, with locally-abundant patches of lesser celandine and wood anemone.

As this woodland is associated with the mixed broadleaved woodland and has a number of similar characteristics, it is also considered to be of local ecological value.

#### Hedgerows (WL1)

The boundary between the two southern fields consists of an overgrown hedgerow on an earth bank of approx. 0.5 – 1 m height. It has not been managed to promote dense ground-level foliage (stock-proofing is provided by an adjacent metal fence), and therefore it is considered to be an 'escaped' hedgerow. The shrub layer is dominated by hawthorn, with abundant ivy, frequent bramble and rare elder. Emergent trees include occasional ash and European larch, and rare beech. No woodland ground flora was observed.

Hedgerows are common in the surrounding area, and all recorded species are common and widespread, so the habitat is considered to be of negligible ecological value. However, they have secondary value as a habitat for birds and small mammals, as discussed in Section 4.4.

#### Treelines (WL2)

There are lines of mature trees at a number of locations around St Thomas' house, and on the boundaries of some fields. There is a long line of mature beech trees to the south of the house, and a shorter stretch of horse-chestnut, beech and sycamore trees along the side of the Tibbradden Road. Short sections of treelines (predominantly ash and fir) are located in the southern field.

As noted above, treelines are common in the surrounding area, and all species are common and widespread (most are not native to Ireland), so the habitat is considered to be of negligible ecological value. However, they have secondary value as a habitat for birds, as discussed in Section 4.4.

Ornamental shrubs / flower beds (WS3 / BC4)

Ornamental shrubs, flower beds and other areas of soft landscaping are located around the outsides of St Thomas' house, many of which are quite overgrown. Almost all species are non-native to Ireland, and they are considered to be of negligible ecological value.

Rare or protected flora

No rare or protected plants were encountered during field surveys.

Invasive plant species

No Japanese knotweed or any other restricted invasive species (as listed on the third schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011*) were recorded during the site inspection. It is acknowledged that the survey was undertaken outside the growing season of these species, but it is often possible to identify the standing stems of knotweed species and giant hogweed during winter / spring months, so the timing of the survey is not considered to be a significant constraint in this regard.

Some butterfly-bush *Buddleja davidii* was recorded in the north-east of the site near Kilmashogue Lane. This species is non-native and can be invasive in places, but it does not have any legal restrictions, and is likely to be killed during construction works, so it is not considered to be an 'important ecological feature' for the purposes of an impact assessment.

#### **4.4 Surveys for protected / priority fauna**

Birds

Some common countryside birds were observed during the survey, including woodpigeon (several large flocks), hooded crow (flocks), jackdaws (flocks and several pairs), blackbird, wren, great tit, coal tit (flock) and blue tit. One active jackdaw nest was observed in a hole in the trunk of a mature beech tree.

The woodland, hedgerows and treelines are likely to be used by a range of nesting birds during summer months. It is unlikely that the site will support significant populations of endangered birds, but due to the extent and diversity of habitat within the site, it is considered to be of local importance for birds. All birds (including nests, eggs and chicks) receive protection under the Wildlife Act 1976 (as amended).

Badger

A small badger sett was found in the north-east of the site near some ruined buildings. It was located in a thicket of non-native shrubs (predominantly *Cotoneaster* sp.), and appeared to have a single entrance, which was under a pile of building rubble. The entrance was unobstructed, and discarded bedding was observed just outside. A patch of flattened



bedding was also observed at the edge of the thicket, suggesting an above-ground resting place. Approx. 10 – 20 latrine holes were located near the sett, of which a small number had fresh droppings.

The sett is located approx. 15 m from one of the proposed pedestrian paths. Its exact location is not shown in this document due to a risk of persecution, but the location can be provided to statutory consultees on request.

Based on the classification systems of Kruuk (1978), Cresswell et al (1990) and Andrews (2013), the sett is considered to be a 'subsidiary' or 'outlier' sett. It is likely to be near the edge of a badger territory, and may only be occupied on an occasional basis, so it is considered to be of no more than local ecological value. Nonetheless, it is noted that badgers and their breeding / resting places receive protection under the *Wildlife Act 1976* (as amended).

#### Bats

A bat survey was not carried out for this assessment due to seasonal constraints. However, the habitats are highly suitable for foraging and commuting bats, and there are a number of potential roosting opportunities in buildings and mature trees, so it is assumed on a precautionary basis that the site is of importance for bats.

St Thomas' house and the associated outbuildings are considered to have high suitability for bats, due to the ages of the structures, the building materials (e.g. stone and masonry walls, slate tiles, wooden soffit / fascia panels), the poor condition of some structures, and the proximity of high-quality woodland foraging habitat. We are not aware of any previous bat surveys of the buildings, but we consider it highly likely that one or more bat roosts are present in these structures.

A number of the mature trees within the site are also considered to have suitability for roosting bats. Using the tag numbers from the tree surveys, the following trees were considered to have suitability for bats:

- High suitability: 1886 (beech), 1871 (beech)
- Moderate suitability: 1881 (beech), 1876 (beech), 1867 (beech), 1864 (beech), 0453/0454 (ash), 0477 (ash), 0479 (ash)
- Low suitability: 0457 (ash), 0458 (ash), 0459 (ash), 3 (ash), 0476 (ash)

Habitats within the site also have moderate to high suitability for foraging and commuting bats, particularly the mixed broadleaved woodland in the east of the site. Brian Keeley of Wildlife Surveys Ireland carried out a bat survey approx. 100m south-west of the proposed development site in June 2017 as part of a planning application (see Section 3.2 of this report), and recorded four species; common pipistrelles, soprano pipistrelles, Leisler's bats and Natterer's bats. There are also records of brown long-eared bats in this area from the

National Biodiversity Data Centre (2km grid square O12M). It is highly likely that the proposed development site will be used as a foraging area by all of these species. It is also possible that Daubenton's bats may forage along the Whitechurch / Kilmashogue Stream, because the author has recorded this species elsewhere in the catchment of the River Dodder.

In summary, it is assumed that several bat species forage within the site on a regular basis during the bat activity season, and that some bat species may roost in buildings and mature trees. On this basis, the site is considered to be of at least local value for bat species.

#### Other terrestrial mammals

No mammals were observed during field surveys. Records of the following protected mammals were obtained from the online data viewer of the National Biodiversity Data Centre in the surrounding 2km grid square (O12M): otter, pine marten, grey squirrel, red squirrel, pygmy shrew and Irish hare.

The Whitechurch / Kilmashogue stream is unlikely to have sufficient fish stocks to support an otter territory, and the culvert underneath the M50 is unlikely to be passable by the otters that use other parts of the Dodder catchment. No otter holts or other field signs of this species (e.g. spraints) were encountered during the field surveys. Overall, the site is considered to be of negligible importance for otters.

The broadleaved woodland, mixed broadleaved/conifer woodland, hedgerow and treeline habitats are suitable for pine marten, squirrels and pygmy shrew. It is often difficult to detect these species from characteristic field signs, but due to the suitability of the habitat, and its potential role as an ecological corridor between the Dublin mountains and suburban parks, the site is considered to be of at least local value for these protected mammals.

#### Reptiles and amphibians

No reptiles or amphibians were observed during the site survey. Considering the lack of wetland breeding sites for amphibians, and the lack of preferred habitats for lizards (typically heaths and dunes), the site is considered to be of negligible value for these taxa.

#### Terrestrial invertebrates

The habitats within the proposed development site are common in rural landscapes in Ireland, so the site is considered to be of negligible value for invertebrates.

### **4.5 Potential limitations and information gaps**

The site inspection was carried out in March, which is an ideal period for surveys of woodland ground flora, but is outside the flowering period for most other plant species. However, most

species can be identified by vegetative characteristics, and most common invasive species can be identified by characteristic remains (e.g. standing stems of knotweed species and giant hogweed), so the timing of the survey is not considered to be a significant constraint.

Due to seasonal constraints it was not possible to carry out a bat survey of the site. However, based on the results of a bat survey at a site nearby, and on the suitability of the habitat for bats, it has been assumed on a precautionary basis that bats are present. March is a suitable month for surveys of other protected mammals, notably badgers and otters.

On this basis, the assessment does not have any significant limitations or information gaps.

#### 4.6 Identification of important ecological features

Table 3 provides a summary of all ecological features identified on the site, including their valuation and legal / conservation status. For the purposes of this impact assessment, any features that are of local ecological value, or that receive legal protection, are considered to be 'important ecological features', and will be addressed in the impact assessment.

**Table 3: Identification of 'important ecological features' within the proposed development site**

Ecological feature	Valuation	Legal status*	Important feature?
Proposed Natural Heritage Areas	National	WA	No
Mixed broadleaved woodland (WD1)	Local	-	Yes
Broadleaved / conifer woodland (WD2)	Local	-	Yes
Treelines (WL2)	Negligible	-	Yes, secondary value for fauna
Hedgerows (WL1)	Negligible	-	Yes, secondary value for fauna
Improved agricultural grassland (GA1)	Negligible	-	No
Amenity grassland (GA2)	Negligible	-	No
Dry meadows and grassy verges (GS3)	Negligible	-	No
Ornamental shrubs / flower beds (WS3)	Negligible	-	No
Rare flora	Negligible	-	No
Invasive plant species	Negligible	-	No
Birds	Local	WA	Yes
Badgers	Local	WA	Yes
Bats	Local	HR, WA	Yes
Pine marten, red squirrel, pygmy shrew	Local	WA	Yes

Ecological feature	Valuation	Legal status*	Important feature?
Other terrestrial mammals	Negligible	-	No
Reptiles and amphibians	Negligible	-	No
Invertebrates	Negligible	-	No

\* HR – *European Communities (Birds and Natural Habitats) Regulations 2011 (as amended)*; WA - *protected under Section 19 or 20 of the Wildlife Act 1976 (as amended)*

In summary, the important ecological features identified on the proposed development site are: woodland, treelines, hedgerows, birds, badgers, woodland mammals (pine martens, red squirrels and pygmy shrews) and bats.

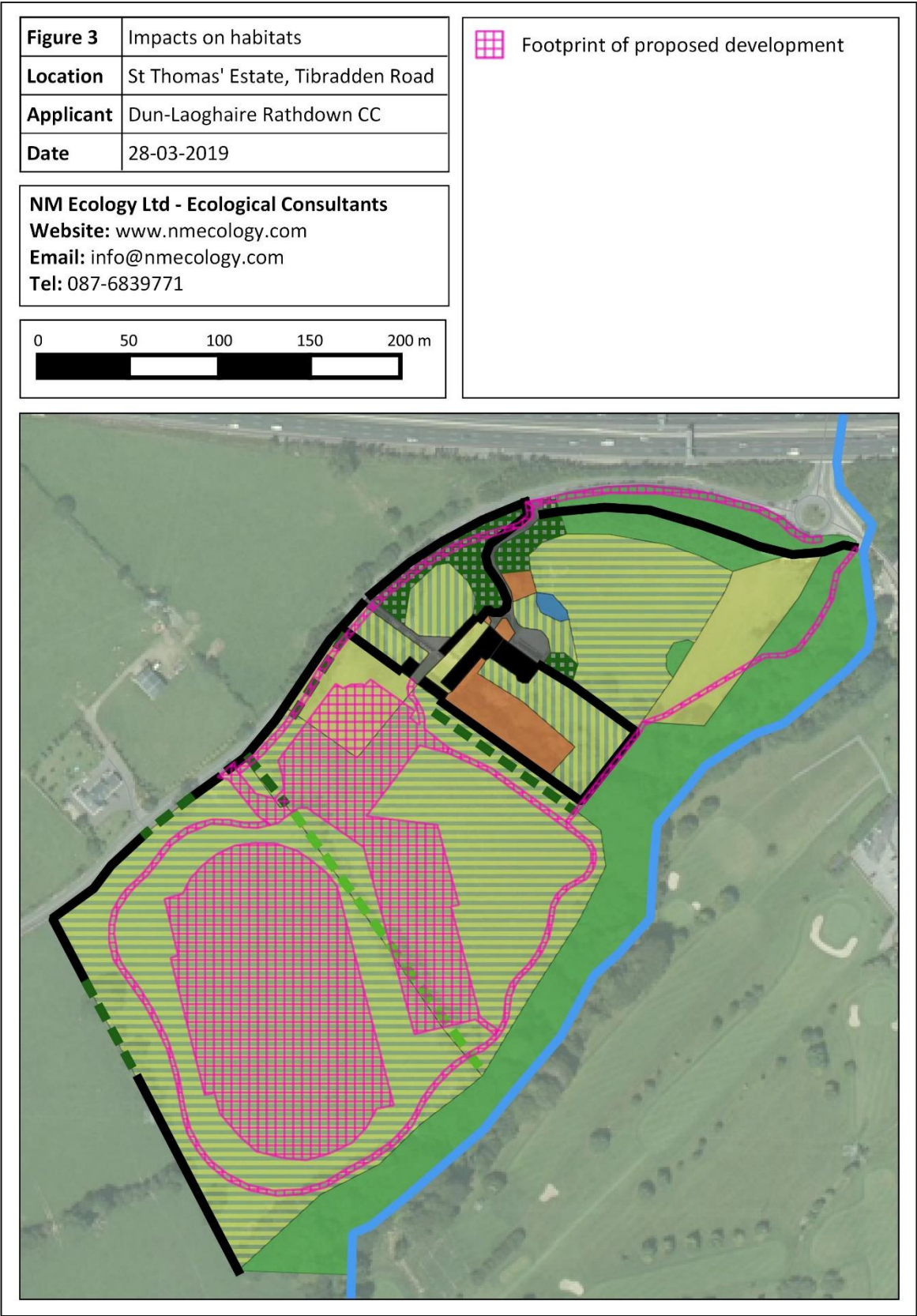
## 5 Predicted Impacts of the Proposed Development

### 5.1 Clearance of habitats during site clearance (construction phase)

The majority of the proposed development – the synthetic running track and the multi-sports building – will be constructed in the two fields in the south of the site (see Figure 3). Almost all of this area is improved agricultural grassland (GA1), with a smaller proportion of dry meadow (GS2); both habitats are of negligible ecological value.

Approx. 50 – 60 m of the hedgerow between these fields is within the footprint of the multi-sports building, and will need to be removed. The dominant species in the hedgerow is hawthorn, and there are a few emergent larch and ash trees. Overall, the loss of this short section of species-poor hedgerow will have only a slight impact on the habitat as a whole.

The landscaping scheme for the proposed development will involve extensive tree planting and infilling of hedgerows, primarily with native species. The main purpose of this planting is to provide shelter from wind, but it will also enhance the biodiversity value of the site. It is expected that the proposed planting scheme will more than compensate for the loss of 50 – 60 m of existing hedgerow, providing a significant increase in tree cover from the baseline condition. Therefore, in the short-term the development will have a slight negative impact on hedgerow habitat, but when newly-planted trees become established, there will be a moderate positive on this habitat in the short- to medium-term.



None of the broadleaved woodland (WD1), broadleaved / conifer woodland (WD2) or mature treelines (WL2) will be removed. Combined pedestrian and cycle paths will be constructed through woodland areas in the north and east of the site to connect to public footpaths at Whitechurch Road. However, these footpaths will follow existing unpaved paths, and therefore will not require tree removal. The paths will have shallow foundations, and will not require extensive excavation within the root zones of trees, so adjacent trees will not be affected. Some woodland ground flora will be removed, but this will only affect a small proportion of habitat within the site, so the impacts will be negligible.

In summary, the majority of the development will be constructed on habitats of negligible ecological value. A short section of hedgerow will be removed, but this will be more than compensated by planting elsewhere in the proposed development site. The pedestrian / cycle paths in the north and east of the site will not have a significant effect on the surrounding woodland habitat.

## **5.2 Disturbance of breeding birds and mammals (construction phase)**

The dense foliage of the hedgerow may support nesting birds, and potentially also some protected mammals such as red squirrel and pygmy shrew. If the trees are cleared during the bird nesting season (usually between March and August, inclusive), it is possible that active nests could be destroyed or disturbed. Red squirrels and pygmy shrews also breed in spring and summer months.

The section of hedgerow to be removed is relatively small. However, depending on the species and numbers of animals that may use it, it is possible that impacts on some birds and mammals could be significant at a local scale. The killing of any protected fauna or disturbance of their breeding / resting places would constitute an offence under the *Wildlife Act 1976* (as amended).

## **5.3 Felling of trees with suitability for bats (construction phase)**

The site contains a large number of mature trees, some of which have crevices or cavities that would be suitable for roosting bats. The conditions of all trees were assessed as part of the Arboricultural Impact Assessment for the proposed development, and a large number were placed in Category U (recommended for immediate removal) or Category C (low quality, with a minimum life span of ten years), including most of the trees that are suitable for bats. Therefore, it is likely that many of the trees with suitability for bats will need to be felled, either during construction works, or within the first ten years of operation.

It is not known whether bats roost in any of these trees, because this assessment was undertaken outside the ideal survey season for bats. In addition, frequently roost switching has been reported for bats in tree roosts, so presence / absence surveys have limited use in



these instances. On a precautionary basis, it is possible that some bats could roost in these trees at the time of felling, in which case they could be killed. The killing of bats or destruction / disturbance of a bat roost would constitute an offence under the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended) and the *Wildlife Act 1976* (as amended). Depending on the numbers and species of bats, it could also have an impact of local significance on bat populations.

#### **5.4 Disturbance of a badger sett (construction phase)**

The small subsidiary / outlier badger sett is located approx. 15m from one of the pedestrian / cycle paths. It is highly unlikely that any underground tunnels from the sett would extend as far as the path, so there will be no direct impacts. However, there is a risk that construction work in the vicinity of the sett could cause indirect disturbance of badgers inhabiting the sett, e.g. through noise or vibration. In the *Guidelines for the treatment of badgers prior to the construction of national road schemes* (National Roads Authority, 2005), it is recommended that “no heavy machinery should be used within 30m of badger setts (unless carried out under licence); lighter machinery (generally wheeled vehicles) should not be used within 20m of a sett entrance; light work, such as digging by hand or scrub clearance should not take place within 10m of sett entrances”, and that “during the breeding season (December to June inclusive), none of the above works should be undertaken within 50m of active setts nor blasting or pile driving within 150m of active setts.”

The pedestrian / cycle path will be a relatively small-scale and localised development, and construction works will be temporary. It is expected that most construction work will be carried out using light machinery, but it may also be possible to complete the work by hand. Therefore the risk of significant disturbance is considered to be relatively low. Nonetheless, if construction activities caused indirect disturbance of badgers within the sett, particularly if breeding badgers were present, it could potentially have a significant impact on the local conservation status of badgers. Under the *Wildlife Act 1976* (as amended) it is an offence to kill or injure a protected animal, or to destroy their breeding or resting place.

#### **5.5 Disturbance of bat foraging areas (operational phase)**

Flood lighting of the sports track is required for evening activities, particularly during winter months. LED floodlights will be installed on 4 no. 21 m and 2 no. 18 m high galvanised steel columns, and light will be directed towards the ground. In order to comply with the IAAF Track and Field Facilities Manual it is necessary to achieve average light levels of 250 lux on the track.

Low energy LED lights on 6m columns will be placed in the car park and access road. The perimeter of the multi-sports building will be lit using surface mounted lights or bollard type lights. Further low bollard-type lights will be placed around the pedestrian / cycle paths.

Although measures have been taken to limit light spill, the development will inevitably cause an increase in artificial lighting in comparison to the baseline condition of the site. The greatest intensity of lighting will be in the southern field around the running track, with some light spill towards the edge of the woodland, and around hedges, mature trees and stone walls on the boundaries of the field. There will be a lower intensity of lighting around the access road, car park and sports building, but there may be some localised light spill onto the outbuildings near St Thomas' house. Finally, the low-level lighting along pedestrian / cycle paths may cause localised illumination in woodland areas.

Most bat species avoid brightly-lit areas, and some species (e.g. Natterer's bat, whiskered bat, brown long-eared bat) will avoid any form of lighting. Light spill could potentially cause abandonment of bat roosts (e.g. in outbuildings near St Thomas' house, or in mature trees throughout the site), or could displace bats from foraging areas around the woodland and field boundaries. The effect would be localised, and would not affect the whole site, so it would only have a minor to moderate negative impact on local bat populations. However, if lighting caused bats to abandon a bat roost, it could have a significant impact of local importance. The disturbance of a roost would also constitute an offence under the *European Communities (Birds and Natural Habitats) Regulations 2011* (as amended).

## **5.6 Potential for pollution of waterbodies (operational phase)**

Small quantities of foul water will be generated by users of the sports centre. A connection to a municipal waste water treatment centre is not available at the site, so foul water will be treated in an on-site packaged waste water treatment plant, and discharged to a percolation area. The percolation area will be located in the north-west of the site near the car-park, more than 100m from the Whitechurch / Kilmashogue stream. The underlying soils are well-drained, and percolation tests have confirmed suitable infiltration capacity. This level of treatment and percolation is considered sufficient to prevent any impacts on underlying groundwater. It is possible that trace quantities of treated waste water may reach the stream via groundwater flow, but due to the high level of treatment, this would not have a significant effect on water quality.

All surface-water runoff from hard surfaces will percolate to ground or will be discharged to soakaways. There will be no direct discharges to the Whitechurch / Kilmashogue stream. Rainwater that percolates to ground is considered to be free of pollutants and does not pose a risk to local watercourses.



Consequently, it can be concluded that foul water and surface water treatment during the operation of the development will not cause any significant impacts upon receiving waters.

### **5.7 Potential in-combination impacts with other developments (all phases)**

One planning application (the Stillorgan Rugby Club facility) was identified that could potentially act in combination with the proposed development to increase the scale of potential ecological impacts (refer to Section 3.2). It will be relatively similar in character to the proposed development, and will involve some floodlighting and the felling of some trees. However, none of these impacts are considered likely to increase the magnitude of any of the impacts outlined above.

## **6 Proposed mitigation measures**

### **6.1 Engagement of an Ecological Clerk of Works**

A number of sensitive habitats and species were recorded in the vicinity of the proposed development site, and some aspects of the development have potential to cause significant ecological impacts. Therefore, the contractor will employ an Ecological Clerk of Works to oversee the implementation of the mitigation measures outlined below.

### **6.2 Protection of habitats, birds and mammals during site clearance works**

Under Sections 22 and 23 of the *Wildlife Act 1976* (as amended), it is an offence to kill or injure a protected bird or mammal, or to disturb their breeding / resting places. Most birds nest between March and August (inclusive), and the peak breeding period of most small mammals is similar. It is strongly recommended that any tree or shrub removal – including the felling of any unsafe trees, and the removal of 50 – 60 m of hedgerow in the centre of the site – is carried out between September and February (inclusive). If this is not possible, an ecologist will survey relevant vegetation in advance in order to determine whether any protected fauna are present. If any are encountered, the vegetation clearance will be delayed until the protected fauna have moved away from the area, e.g. when chicks have fledged and a nest has been abandoned.

Tree protection zones will be marked out for all trees and hedgerows, as outlined in the Arboricultural Implications Assessment.

### **6.3 Felling of trees with bat potential**

The arborist has recommended that some mature trees should be removed for safety reasons. Many of these trees are considered to be suitable for roosting bats, as described in Section 4.4 of this report. Prior to any tree felling works, the Ecological Clerk of Works (or a

bat specialist employed on their behalf) will re-assess the suitability of these trees for roosting bats.

The following measures will be implemented when felling trees that have suitability for bats:

- Trees with low suitability for bats will be felled in sections by a tree surgeon and left undisturbed on the ground for 24 hours before removal.
- Any trees of moderate or high suitability will be surveyed by a bat specialist prior to felling. This may involve climbing trees to inspect crevices / cavities using an endoscope, or observing bat activity from ground level using a bat detector. If any roosting bats are present, the ecologist will develop a case-specific mitigation strategy and apply to the NPWS for a derogation licence. Any bats would be permanently excluded from the tree before felling, and if breeding or hibernating bats are present, a seasonal restriction may be applied.
- If a tree of moderate or high suitability is surveyed and no bats are recorded, then it will be felled immediately. It will be cut in sections by a tree surgeon, and all sections with crevices or cavities will be lowered carefully to the ground and left undisturbed on the ground for 24 hours before removal.

As noted above, some works have potential to kill bats or destroy a bat roost, so derogation from the *European Communities (Birds and Natural Habitats) Regulations 2011* may be required. This will be considered by the Ecological Clerk of Works following the pre-felling surveys.

To compensate for bat roosts that will be lost during tree felling works, 20 no. bat boxes in a range of designs will be installed throughout the proposed development site. The Ecological Clerk of Works will identify appropriate designs and supervise their installation.

#### **6.4 Protection of the badger sett**

The badger sett is located in the north-east of the site near the proposed pedestrian / cycle path. It will not be directly affected during construction works, but some mitigation will be required in order to protect it from indirect impacts (e.g. noise and vibration). It is not considered necessary to exclude badgers from the sett during construction works, as impacts can be avoided using seasonal restrictions and sensitive working techniques.

It is possible that the sett is used by breeding badgers, so no work will be undertaken in this area during the breeding season (December to June, inclusive), unless it is confirmed by the Ecological Clerk of Works that the sett is unoccupied.

Prior to constructing the pedestrian / cycle path, the Ecological Clerk of Works will mark an exclusion zone of 20 m around the entrance to the badger sett, within which there will be no access by any construction vehicles. Construction within the exclusion zone will be

undertaken by hand, or by an extended arm of the excavator. No unnecessary work will be permitted within the exclusion zone, such as the stockpiling of building materials, or any passage of construction vehicles. All work in the vicinity of the badger sett will be supervised by the Ecological Clerk of Works.

It is not expected that a derogation licence pursuant to the *Wildlife Act 1976* (as amended) will be required for these works, but this will be considered by the Ecological Clerk of Works at the time of construction.

## **6.5 Restrictions on lighting near the woodland and hedgerows**

The lighting plan for the proposed development includes measures to restrict light spill, including directional hoods and bollard-style lighting. However, in order to avoid significant impacts on foraging bats, the Ecological Clerk of Works (or a bat specialist employed on their behalf) will review the final lighting proposals in order to avoid or minimise impacts on bats. Where possible, all lighting will incorporate bat-sensitive lighting techniques, as outlined in the *Bats and Lighting* guidelines (Stone 2013):

- Low-UV LEDs or low / high pressure sodium lamps will be the preferred bulb type, as they have least effect on bats. Mercury or metal halide bulbs will not be used.
- No lights will be directed towards St Thomas' house, the associated outbuildings, or any woodland, treelines or hedgerows.
- Floodlights at the running track, site entrance and car park will be fitted with directional hoods and/or luminaires to direct the light onto targeted areas and to prevent unnecessary light-spill.
- Pedestrian lights will be mounted on bollards of less than 1m height, and will be directed downwards, with 0% upward light. Lux levels will be the minimum required for safe pedestrian access.
- Where feasible, lights around the exterior of the buildings will be fitted with motion sensors and timers in order to provide light only when required.

Timing of lighting is a key consideration for this development. Floodlights will be required during evening use of the facility, usually until approx. 22:00, but they will be switched off overnight. There will be greatest requirement for floodlighting in winter months, but bats are likely to be in hibernation during these periods, so there will be little impact on foraging bats. Floodlighting is unlikely to be required in mid-summer months, because daylight typically persists until 22:00 – 23:00. Therefore, the potential impacts on foraging bats are most likely during transitional months (notably April, May, September and October), when bats are active but daylength is short. During these months, floodlights will be switched off promptly at 22:00 in order to minimise impacts on bats. All other lights (e.g. at the site entrance, car park and pedestrian paths) will be switched off when all users have left the site.

## **7 Residual Impacts**

The mitigation measures outlined in Section 6 will avoid, minimise or compensate for any impacts on important ecological features, and the implementation of these measures will be overseen by an Ecological Clerk of Works.

Any removal of trees, scrub and hedgerow habitats will take place outside the season of peak nesting activity in birds, or the area will be surveyed by an ecologist to confirm that no protected fauna were present. As a result, there will be no impact on local bird or mammal populations, and no legal offence under the *Wildlife Act 1976* (as amended).

Mature trees with suitability for bats will be felled in a manner that avoids or mitigates impacts on any bats that may roost within them, including pre-felling surveys, restrictions on the timing of felling works, and felling of trees in sections. As a result, there will be no direct impacts on bats roosting in these trees, and no legal offence under the *Habitats Regulations 2011*.

Bat-sensitive lighting techniques will be implemented throughout the site in order to avoid light-spill into important roosting or foraging areas for bats. As a result, there will be no residual impacts on foraging, commuting or roosting bats.

Construction work in the vicinity of the badger sett will be carefully controlled in order to avoid direct or indirect impacts on the sett. This will ensure that there will be no ecological impact on badgers, and no legal offence under the *Wildlife Act 1976*.

Subject to the successful implementation of these measures, it is concluded that the proposed development will not cause any significant negative impacts on designated sites, habitats, legally protected species, or any other features of ecological importance.

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