

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

ASHBOURNE SKATE PARK, CO. MEATH

ECOLOGICAL APPRAISAL

Prepared for: Meath County Council



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ECOLOGICAL APPRAISAL

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Abstract: This document comprises an ecological appraisal outlining the receiving ecological environment

and potential sensitivities for a proposed skate park at Ashbourne, Co. Meath, and is based on

desk-top review and an ecological site walk-over survey.

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1. INTRODUCTION

Fehily Timoney and Company (FT) were commissioned by Meath County Council to carry out an ecological site walkover and ecological appraisal of the proposed Ashbourne Skate Park site in Ashbourne, Co. Meath.

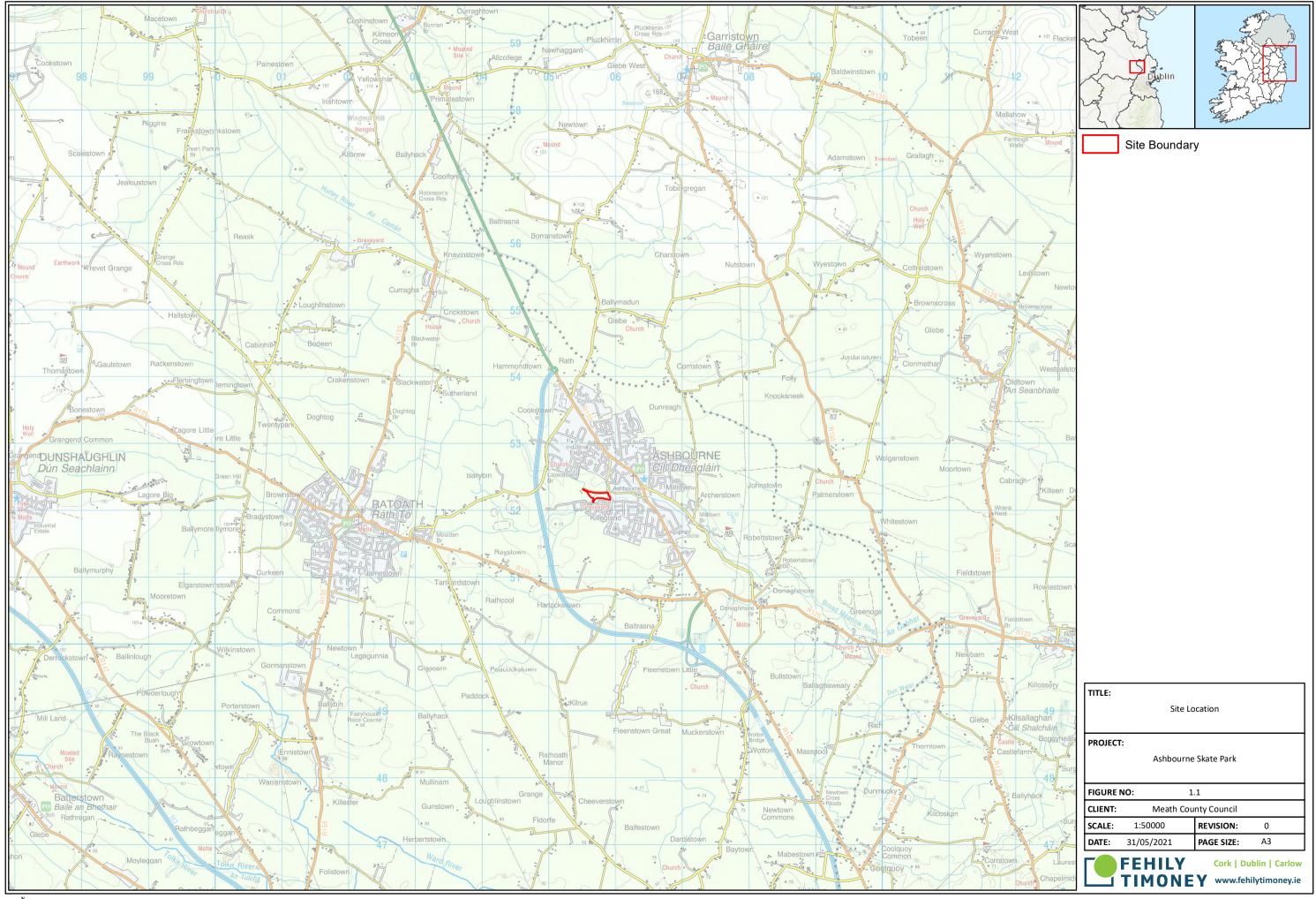
The proposed site comprises of approximately 2.9 hectares of land situated in a suburban area, 0.98km southwest of Ashbourne town centre, and borders a housing estate to the south, as well as a local town road to the north. As well as the proposed skate park, a pedestrian bridge will also be constructed, crossing the Broadmeadow River.

The Broadmeadow River flows through the site in a west-easterly direction and provides a direct hydrological connection to the Malahide Estuary SAC, some 13.7km to the southeast.

The lands within the site are low-lying, with a predominantly flat topography. Lands bordering the adjacent housing estate to the south-east are slightly elevated in parts. The site contains several semi-natural habitats, with elements of wet grassland (GS4) throughout, several mature native trees, as well as the previously mentioned Broadmeadow River. The soil on-site is predominantly alluvial, however to the south of the site is till.

This report presents the results of a desktop study as well as an ecological site walkover.

Figure 1-1, below shows the location and extent of the site.



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2. METHODOLOGY

This report comprises two distinct components which serve to allow the assessment of potential impacts to biodiversity, namely a desktop study, and an ecological site walkover.

2.1 Desktop Study

A desktop study was carried out to collate and review available information pertaining to the site's natural environment. Resources consulted included NPWS information on protected sites¹ and national biodiversity data centre (NBDC) records² and Inland Fisheries Ireland (IFI) IFI National Research Survey Programme data³. The following were examined:

- Designated nature conservation sites: Natura 2000 sites, Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) within the potential zone of influence (ZOI) of the proposed development site.
- Records of rare or protected flora and fauna that have previously been recorded for the site and surrounding area from the Biodiversity Ireland Database 10 km grid square O05.
- Records of fish which have been recorded in the Broadmeadow River, in proximity to the proposed site (8km south-east) as well as the Malahide SAC, into which the river exits.

2.2 Site Walkover

An ecological site walkover was undertaken on 12th April 2021 to identify ecological constraints and produce a habitat map of the site. See Table 2-1 for field survey details.

The habitats within the site were identified and classified according to 'A Guide to Habitats in Ireland' (Fossitt, 2000) during walkover surveys of the site on the dates indicated above. All plant species present in each habitat type were recorded.

Habitats were appraised and evaluated according to their occurrence as protected habitats under Annex I of the EU Habitats Directive (92/43/EEC) and for their capacity to support rare, threatened, and endangered species. The methodology used in this report to assess the impact on habitats is based on NRA guidelines (2009).

The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011) published by the Heritage Council. Scientific and common names for plants follow Parnell et al. (2012) and Blamey et al. (1996), respectively.

Mammal observations or signs were recorded during site walkovers on the 12th of April 2021. Field boundaries were walked to search for potential badger setts.

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¹ https://www.npws.ie/protected-sites

² https://www.biodiversityireland.ie/

³ https://ifigis.maps.arcgis.com/apps/webappviewer/index.html?id=9a31fedb077c4fb2991184842b7ef025

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Ashbourne skatepark, Co. Meath



Riparian areas and watercourse were investigated for spraints and/or holts. Evidence of bat roosts was searched for and information on all potential roosts was recorded according to roost identification guidelines 'Bat Survey Guidelines: Traditional Farm Buildings Scheme', Aughney, T., Kelleher, C. & Mullen, D. (2008) and 'Bat Surveys: Good Practice Guidelines' (Collins, 2016).

During ecological surveys at the proposed site, species from other groups of fauna were noted and included in the report.

Table 2-1: Field assessment conditions

Date:	Weather Conditions:
12/04/21	Precipitation: none, Cloud: 7/8, Wind: F1-2

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3. EXISTING ENVIRONMENT

This section presents the combined results of both the desktop study and ecological site walkover, conducted on the 12th of April 2021.

3.1 Designated Sites

3.1.1 European sites

There are four European (Natura 2000) sites within the potential zone of influence (ZOI) of the proposed development:

- Malahide Estuary SAC (site code 000205, 13.7km SE)
- Malahide Estuary SPA (site code 004025, 14.1km E)
- Rogerstown Estuary SAC (site code 000208, 14km E)
- Rogerstown Estuary SPA (site code 004015, 15km E)

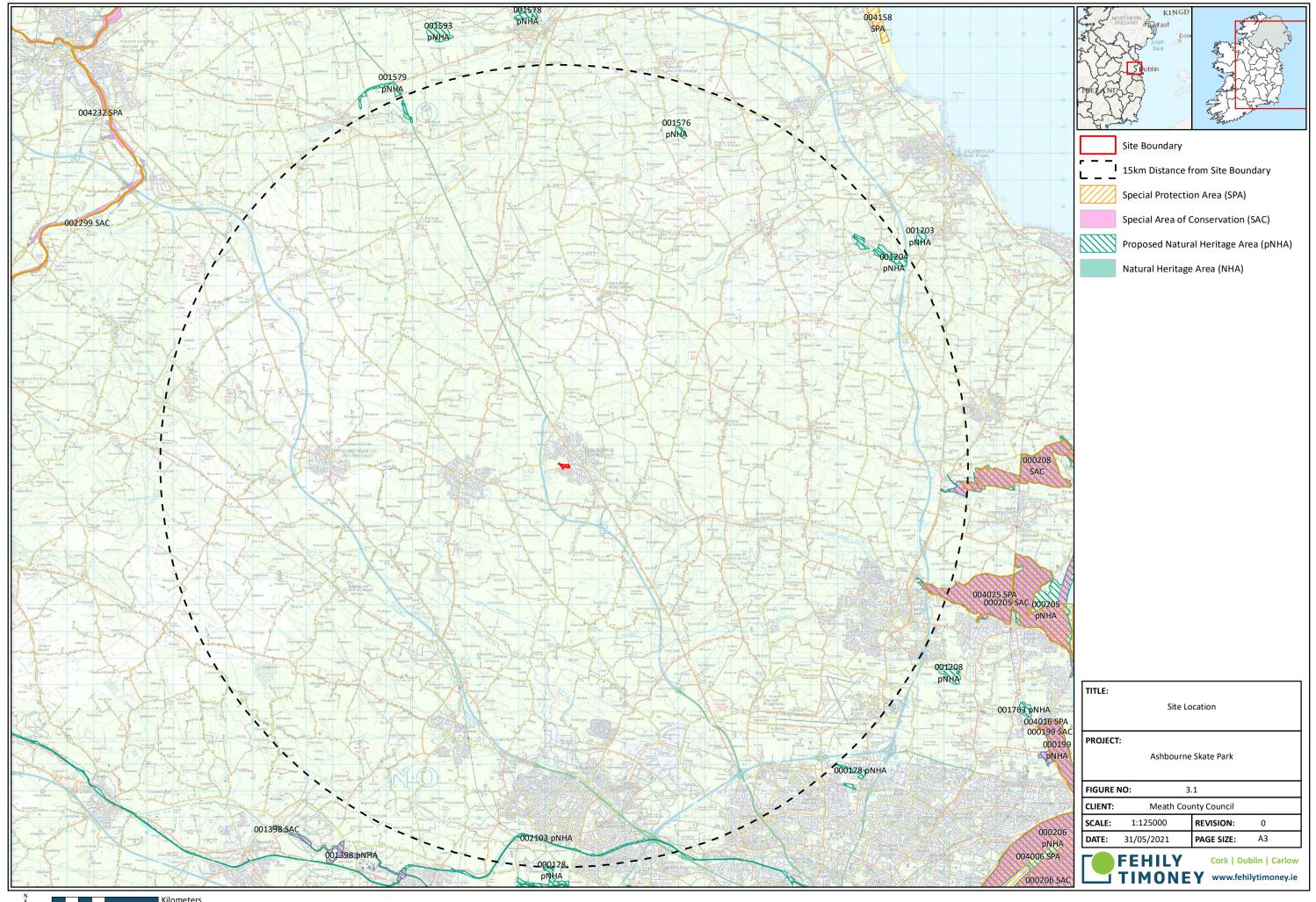
The Broadmeadow River, joined by the Dunshaughlin Stream from the northwest of the site flow in a west-easterly direction and provides a direct hydrological connection to the Malahide Estuary SAC, some 13.7km to the southeast. A separate AA screening report has been prepared to examine the potential effects of the proposed development on European (Natura 2000) sites.

3.1.2 National sites (pNHAs/NHAs)

There are no proposed Natural Heritage Areas (pNHAs) or Natural Heritage Areas (NHAs) within 10km of the proposed development (See Figure 3-1 below). Cromwell's Bush Fen pNHA (site code 001576) is the closest site located 13km north east of the proposed development. The pNHA holds several fen communities with records of the rare floating plant frogbit (*Hydrocharis morsus-ranae*). Wetland waders and ducks, for example Teal, Woodcock, Snipe and Mallard have also been recorded within the pNHA.

Malahide Estuary pNHA (site code 000205) located 13.7km to the southeast (across land) is downstream of the site. The site is also designated as a Special Area of Conservation (SAC) and Special Protection Area (SPA) for birds.

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3.2 Flora and Fauna

The following sections provide a detailed account of the existing environment in terms of flora and fauna within the site.

3.2.1 Habitats

The habitats within the site were identified as depositing/lowland rivers (FW2), spoil and bare ground (ED2), buildings and artificial surfaces (BL3) scrub (WS1), wet grassland (GS4), dry meadows and grassy verges (GS2) and treelines (WL2). The habitat map is present in Figure 3-2 below.

Two watercourses occur within the site. The Dunshaughlin Stream runs from the northwest corner (see Plate 1), flowing in a south-easterly direction, joining the Broadmeadow River in the southwest, which in turns flows east and exits through the eastern border under a man-made culvert (see plate 2). This river enters the site via another culvert at the southernmost extremity of the site (see plate 3). The Broadmeadow River appears to suffer from pollution, probably in association with the urban environment through which it flows (see plates 2 and 3). A moderate flow, with some riffles in places were noted (see plate 4). Banks were largely unstable, too low, and were generally deemed unsuitable for breeding kingfisher or otter (see plate 4). A grey silty layer was noted on top of a rocky sediment throughout much of the riverbed (see plates 2 and 3). This was coupled with a consistent layer of alga, pointing to pollution/eutrophication. Several waste items of an anthropogenic source were noted, including a traffic cone and several large iron discards. Along the river's edge meadowsweet Filipendula ulmaria, nettle Urtica dioica, hogweed Heracleum sphondylium, lesser celandine Ranunculus ficaria, and willowherb (Epilobium) sp. were noted.



Plate 1: Dunshaughlin Stream (top-left/north-west) joining the Broadmeadow River – flowing south-west to north-east.

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Plate 2: Bridge crossing the Broadmeadow River at the north-eastern corner of the site.



Plate 3: Double culvert/bridge system crossing the Broadmeadow River at the south-western corner of the site.

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Plate 4: The Broadmeadow River runs through the site at a steady pace, in places forming riffles as pictured above.

In wetter areas of the site, particularly in the vicinity of the two watercourses and the western section in general, wet grassland (GS4) was noted (see plate 5). This was typified by a relatively dense cover of hard rush (in places up to 40%), patches of reed *Phragmites australis*, hemlock *Conium maculatum*, creeping buttercup *Ranunculus repens*, meadow foxtail *Alopecurus pratensis*, dandelion *Taraxacum officinale agg.*, vetch (Vicia) sp., meadowsweet *Filipendula ulmaria*, lesser celandine *Ficaria verna*, cuckooflower *Cardamine pratensis*, common knapweed *Centaurea nigra*, and hogweed *Heracleum sphondylium*.

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Plate 5: Wet grassland habitat (GS4) looking towards the southern boundary of the site which backs onto a housing estate. Several mature trees are visible along this perimeter.

The site dries towards the south-eastern border, where the land is slightly raised and escapes the influences of the two on-site watercourses (see plates 6 and 7).



Plate 6: Grassy verges habitat (GS2), alongside a hawthorn dominant section of treeline (WL2) bordering the south-eastern corner of the site.



Along the southern border lies a treeline (WL2) with mature elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, and willow (*Salix*) sp. A large (12m+) sycamore *Acer pseudoplatanus* occurs in the southwest corner. Other plants noted along this treeline were creeping buttercup *Ranunculus repens*, common figwort *Scrophularia nodosa*, bramble *Rubus fructicosus*, dog rose *Rosa canina*, and willowherb (*Epilobium*) sp.

Pockets of gorse/bramble *Ulex europaeus/Rubus fructicosus* scrub (WS1) was noted in several areas on-site, including along the southern border (forming a WL2/WS2 mosaic) and along the western border of the Dunshaughlin Stream.



Plate 7: Bramble scrub (WS1) running along the southern boundary of the site.

An area of bare ground (ED2) with concrete and rubble occurs just west of the entrance of the site (see plate 9). This is met from the main road via an old tarmac track (BL3) (see plate 8).

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Plate 8: An old tarmac road, running from the eastern border.



Plate 9: An area of open concrete/gravel rubble (ED2) occurs at the eastern section of the site.

No protected flora was noted during the habitat walkover. Furthermore, a search of national biodiversity data centre (NBDC) records indicated that no protected flora have been recorded within the 10km grid square O05 previously.



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3.2.2 Aquatic Receiving Environment

The Broadmeadow River, joined by the Dunshaughlin Stream from the northwest of the site flows in a west to east direction and provide a direct hydrological connection to the Malahide Estuary SAC, some 13.7km (overland) to the southeast. The Broadmeadow River, whilst not officially updated on the EPA map viewer⁴ (has been designated as a salmonid river, however it is known that surveys conducted by Inland Fisheries Ireland by request of the Ashbourne Tidy Towns Committee (IFI) have identified relevant fish species.

As a result of this designation, any in-stream works must not commence without prior consultation with the IFI.

The Broadmeadow River feeds into Malahide Estuary SAC (000205) and Broadmeadow/Swords Estuary SPA (004025). However, the river travels through county Meath and County Dublin for approximately 15.4km in a south easterly direction before reaching the Malahide Estuary SAC (000205). It then travels a further 410m before reaching the Broadmeadow/Swords Estuary SPA (004025).

No protected species have been recorded within the 10km grid square O05 (Biodiversity Ireland online database). A 2011 survey of the Broadmeadow River conducted by Inland Fisheries Ireland (IFI National Research Survey Programme online database - accessed 14/05/21) at Lispopple, Co. Dublin, some 8km southeast (downstream) of the site, noted European eel Anguilla Anguilla (red listed: critically endangered); brown trout Salmo trutta; minnow Phoxinus phoxinus; nine-spined stickleback Pungitius pungitius; stone loach Barbatula barbatula; and three-spined stickleback Gasterosteus aculeatus. A 2008 survey of the Malahide Estuary SAC (IFI National Research Survey Programme online database – accessed 14/05/21), into which the Broadmeadow River flows, found a total of thirteen fish species, namely: European eel Anguilla Anguilla (red listed: critically endangered); European sea bass Dicentrarchus labrax; Flounder Platichthys flesus; Gunnel (Butterfish) Pholis gunnellus; Lesser sandeel Ammodytes marinus; Perch Perca fluvialtilis; Plaice Pleuronectes platessa; Roach Rutilus rutilus; Sand goby Pomatoschistus minutus; Short-spined sea scorpion Myoxocephalus scorpius; Sprat Sprattus sprattus; Thick-lipped grey mullet Chelon labrosus; Three-spined stickleback Gasterosteus aculeatus.

3.2.3 Invasive species

The following invasive species have been recorded within the 10km grid square O05 (Biodiversity Ireland online database):

Table 3-1: Invasive species located within 10km grid square O05 (NBDC, 2021)

Common Name	Scientific Name	Impact Level	Status	Date of Last Record
Himalayan Knotweed	Persicaria wallichii	Medium	Regulation S.I. 477 (Ireland)	27/09/2013
Indian Balsam	Impatiens glandulifera	High	Regulation S.I. 477 (Ireland)	26/09/2013
Japanese Rose	Rosa rugosa	Medium	N/A	10/05/2020
Sycamore	Acer pseudoplatanus	Medium	N/A	26/09/2013
Traveller's-joy	Clematis vitalba	Medium	N/A	26/09/2013

⁴ https://gis.epa.ie/EPAMaps/ - accessed 03/06/21

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Common Name	Scientific Name	Impact Level	Status	Date of Last Record
Wall Cotoneaster	Cotoneaster horizontalis	Medium	N/A	26/09/2013
Brown Rat	Rattus norvegicus	High	Regulation S.I. 477 (Ireland)	09/09/2014
Eastern Grey Squirrel	Sciurus carolinensis	High	Regulation S.I. 477 (Ireland)	31/12/2012
European Rabbit	Oryctolagus cuniculus	Medium	N/A	20/04/2014

There are no invasive species detected on-site. A mature sycamore in the southwest corner of the site (ITM Coordinates: 705637, 752198) is the only non-native species of note.

3.2.4 Mammals (excluding bats)

No badger *Meles meles* setts were observed on site. The fact that the site is relatively restricted in size (2.9 hectares) and is essentially surrounded by urbanisation also limits the potential for the species to occur within the site.

No otter *Lutra lutra* (protected under Annex IV of the Habitats Directive) signs or holts were observed, with the bank generally being too shallow-sloping and unstable to support one. Furthermore, the riparian corridor is quite open along most of the banks which is unfavourable to otters which prefer covered holting sites. The bridges/culverts on-site are of a modern build and no obvious crevices suitable for holt construction were noted and it was deemed unlikely to host breeding otters. However, this does not exclude the river and associated bank as a potential location for otter activity, with the nearest documentation coming from O059524 in the form of spraint. This record comes from 23/04/16 and is within 160m of the site.

Due to the urban, enclosed nature of the site, it is also extremely unlikely that Irish Hare *Lepus timidus subsp. hibernicus* occurs, although there is enough habitat and cover to support hedgehog *Erinaceus europaeus* and pygmy shrew *Sorex minutus*, protected under the Wildlife Acts.

Following a review of the Biodiversity Ireland Database, the following mammals have been recorded within the 10km grid square O05:

Table 3-2: Mammal species located within 10km grid square O05 (NBDC, 2021)

Common Name Scientific Name		Status	Date of Last Record
Eurasian Badger	Meles meles	Protected Species: Wildlife Acts	31/12/2012
European Otter	Lutra lutra	EU Habitats Directive, Annex IV.	24/05/2016
Irish Hare	Lepus timidus subsp. hibernicus	Protected Species: Wildlife Acts; EU Habitats Directive, Annex V(a).	07/01/2018
Red Fox	Vulpes vulpes	N/A	04/01/2018

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Common Name	Scientific Name	Status	Date of Last Record
West European Hedgehog	Erinaceus europaeus	Protected Species: Wildlife Acts	06/08/2013

3.2.5 Bats

Several mature trees are present on site which may offer potential roosting habitat for bats. The directly adjacent Broadmeadow River offers potential commuting and foraging habitat for bats, particularly for Daubenton's Bat *Myotis daubentonii* which typically feeds over water. Whilst other species may occasionally avail of the river for feeding, the latter is a water specialist. Streetlights lining the adjacent road, running parallel to Broadmeadow River, have the potential to reduce the watercourse as a suitable feeding site, as bats generally prefer dark feeding/commuting corridors and artificial lighting can form a barrier to movement for species like Daubenton's Bat.

Following a review of the Biodiversity Ireland Database, the following bat species have been recorded within the 10km grid square O05:

Table 3-3: Bat species located within 10km grid square O05 (NBDC, 2021)

Common Name	Scientific Name	Status	Date of Last Record
Daubenton's Bat	Myotis daubentonii	Council Directive 92/43/EEC Annex IV	23/08/2013
Brown Long-eared Bat	Plecotus auritus	Council Directive 92/43/EEC Annex IV	04/08/2012
Nathusius's Pipistrelle	Pipistrellus nathusii	Council Directive 92/43/EEC Annex IV	20/07/2006
Lesser Noctule	Nyctalus leisleri	Council Directive 92/43/EEC Annex IV	23/08/2013
Pipistrelle	Pipistrellus pipistrellus	Council Directive 92/43/EEC Annex IV	16/06/2014
Soprano Pipistrelle	Pipistrellus pygmaeus	Council Directive 92/43/EEC Annex IV	16/06/2014

3.2.6 Avifauna

A total of 28 species were recorded during the current survey. These included red-listed grey wagtail *Motacilla cinerea*, meadow pipit *Anthus pratensis* and snipe *Gallinago gallinago* as well as a total of five amber-listed species, namely: linnet *Linaria cannabina*, herring gull *Larus argentatus*, house sparrow *Passer domesticus*, mallard *Anas platyrhynchos*, and sparrowhawk *Accipiter nisus*. The remainder were green listed. No species protected under Annex I of the EU Habitats Directive, were noted on site.

A total of 49 bird species are recorded in NBDC records for the 10 km grid square O05. Of these, seven are Birds of Conservation Concern in Ireland (BoCCI - Gilbert *et al* (2021)) with four amber listed, and three red-listed, namely grey wagtail, meadow pipit and redwing *Turdus iliacus*. The remainder were green listed. No species protected under Annex I of the EU Habitats Directive were reported.

Two snipe flushed on site, are considered unlikely to be breeding, due to the heavy footfall on site, from both humans and dogs, and were most likely utilising wet grassland habitat to feed and roost.



Likewise, heavy footfall is considered to be a significant limiting factor to breeding meadow pipit (recorded as a flyover), a ground-nesting species. Grey wagtail was noted along the Broadmeadow River, on-site, and flying over the site. Requiring flowing freshwater, grey wagtail has the potential to breed on site and was confirmed to use the site for feeding. This species frequently builds its nest under bridges; however, the bridges on-site appear to be unsuitable, being too smooth/polished, without any suitable ledges or crevices for nest building.

Amber-listed mallard, herring gull and sparrowhawk were all noted as flyovers and whilst they may use the site for hunting/foraging, are unlikely to breed, except for mallard. Herring gull typically breed on flat rooftops in urban habitats and may breed nearby, sparrowhawk typically breed in tall mature trees in woodland or larger parks. Whilst there are some mature trees on-site, they are not in high densities deemed to be sufficient for this species to breed. Mallard breeds on most waterways although lack of cover along the river is considered a limiting factor for the species whose recently fledged young are susceptible from aerial predation from avian predators such as herring gull and grey heron. Linnet was noted feeding on seeds on-site and has the potential to breed in scrub and treelines.

3.2.7 Other taxa

Although both common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris* have occurred in the 10km grid square, neither were detected on the walkover survey nor was any suitable habitat to host either species.

Table 3-4: Other species located within 10km grid square O05 (NBDC, 2021)

Common Name	Scientific Name	Status	Date of Last Record
Common Frog	Rana temporaria	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts	13/05/2020
Smooth Newt	Lissotriton vulgaris	Protected Species: Wildlife Acts	14/06/2012

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4. IMPACT ASSESSMENT

The following provides an account of the potential impacts arising to the existing environment in terms of biodiversity. Such impacts can arise during the construction and/or operational phases of the proposed development and are considered below. Potential effects on designated sites and cumulative effects are also considered. The EPA evaluation criteria⁵ and CIEEM⁶ (2018) was utilised in this appraisal of the potential impacts to biodiversity (See appendix 1).

4.1 Construction Phase

The following provides an account of the potential impacts arising to the existing environment in terms of biodiversity, during the construction phase of the proposed project.

4.1.1 <u>Designated Sites</u>

The proposed skatepark development site is not within the boundary of any designated conservation areas and does not require any resources from designated areas. Designated sites within the potential ZoI of the proposed development site considered under their higher European designation under an Appropriate Assessment Screening Report. There are no proposed Natural Heritage Areas (pNHAs) or Natural Heritage Areas (NHAs) within 10km of the proposed development. Malahide Estuary pNHA (site code 000205) is located 13.7km to the southeast (across land), downstream of the site. These are connected hydrologically via the Broadmeadow River, however, give, the scale of works and distance involved, a *Temporary Imperceptible Localised Impact* is predicted.

4.1.2 Flora and Fauna

There are no Annex I habitats within the proposed site boundary.

A total of seven habitat types were identified within the study area of the proposed site, namely depositing/lowland rivers (FW2), spoil and bare ground (ED2), buildings and artificial surfaces (BL3) scrub (WS1), wet grassland (GS4), dry meadows and grassy verges (GS2) and treelines (WL2). Of these, five are key ecological receptors, and the potential impacts on each habitat will be discussed forthwith.

The Broadmeadow River, classed as depositing/lowland rivers (FW2), runs west-east through the length of the proposed site. A simple span bridge crossing is planned on site. These are designed to cause minimal disturbance to the riverbanks. Potential effects include siltation and associated nutrient input, wastewater, and hydrocarbon/cement pollution. Due to the low flow rate of the river at the proposed Ashbourne site, and the presence of a vegetated buffer along sections of the river, any siltation effects are predicted to be temporary and localised. Any accidental pollution would be at a small scale. As such, a *Short-term Slight Localised Impact* to this habitat type is predicted.

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⁵ EPA, (2017) Guidelines on the information to be contained in Environmental Impact Assessment Reports Draft May 2017

⁶ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine,* 3rd edition. Chartered Institute of Ecology and Environmental Management, Winchester

Meath County Council Ashbourne skatepark, Co. Meath



Vegetation clearance will likely have *Long-term Moderate Localised Impact* on scrub (WS1), wet grassland (GS4), dry meadows and grassy verges (GS2), although plans are in place to supplement and enhance sections of these habitats on site which would offset this proposed impact.

Treelines (WL2) are to remain intact and as such a *Short-term Imperceptible Localised Impact* to this habitat type is envisaged, in the form of temporary faunal displacement during heavy/loud works.

No rare or protected flora were recorded within the study area nor are any invasive species.

No evidence of any protected birds breeding on site were noted, and any displacement of birds would be temporary, thus a *Short-term Imperceptible Localised Impact is* predicted. However, if vegetation clearance particularly of scrub were to be carried out during the bird nesting season 1st of March to the end of August this could result in a *Short-term Significant Localised Impact* on nesting species.

No protected mammals were noted on site. While otter has been recorded 160m from the proposed site, no holts are present and the section of the Broadmeadow River that runs through the site provides commuting and possibly sub-optimal foraging habitat only. Therefore, considering the limited value of the river in combination with the crepuscular activity patterns of otter which avoid peak construction activity times, a *Temporary Imperceptible Localised Impact* is predicted for otter.

As the treeline containing potential bat-roosting sites is to be retained, and the existing bridges/culverts have been deemed unsuitable for roosting bats, a *Short-term Imperceptible Localised Impact* is predicted.

No other species of note were detected on site. The watercourse on site has been designated as a salmonid river, and therefore in the event that concrete washout, hydrocarbons or other pollutants enter the river this could (without mitigation) result *Short-term Significant Localised Impact* on salmonid species within the within the watercourse. These species also offer potential prey items for otter and therefore a *Short-term Significant Localised Indirect Impact* could ensue without mitigation measures.

4.2 Operational Phase

The following provides an account of the potential impacts arising to existing environment in terms of biodiversity, during the operational phase of the proposed project.

4.2.1 <u>Designated Sites</u>

No impacts are envisaged, as the site will not require any further works, with little maintenance.

4.2.2 Flora and Fauna

As the current site already has open-access to the public and receives a high-level of footfall from dog-walkers, and children playing, with numerous paths worn through the site there is a degree of habituation to a human presence onsite currently. Therefore, no additional impacts are envisaged after the construction of the proposed skatepark, which will require minimal maintenance.

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4.3 Cumulative Impacts

It can be difficult to predict cumulative impacts of developments on features of ecological interest prior to their construction. Cumulative impacts will also depend on species present, number, and frequency of occurrence of fauna observed at the proposed site and at adjacent proposed and existing developments. The timing of the construction phase can also have a bearing on the magnitude of the impact. It is also dependent on distance from the proposed development to other existing and proposed developments and the habitats present between same or their linkage to the proposed development site.

A cumulative impact arises from incremental changes caused by other past, present or reasonably foreseeable actions together with the proposed development. The surrounding environment is dominated by agricultural land, peat bogs, residential and farming properties.

The main damaging operations and threats to the greater region's ecological resources are other developments and water pollution.

A planning search was carried out using the online planning enquiry system at: http://www.eplanning.ie/MeathCC/searchtypes for the townlands overlapping and abutting the proposed development site (listed below).

The townlands encompassing the proposed development site and surrounding area are:

- Ashbourne
- Ratoath
- Curragha
- Rowlestown
- Oldtown

A small number of domestic developments and a single housing development are permitted in these townlands. The small scale of these projects precludes large-scale cumulative effects, however, in the absence of mitigation, such developments could impose a localised cumulative impact on the watercourse, through increased disturbance and/or pollution.

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5. MITIGATION MEASURES

The following section outlines the proposed mitigation measure to be implemented to reduce the potential impacts to biodiversity identified in section 4 above.

5.1 Designated Nature Conservation Sites

• No measures are required in relation to designated sites in this case.

5.2 Water Quality

The mitigation measures proposed to reduce potential direct and indirect impacts to water quality, aquatic habitats and fauna are outlined below:

- Excavated subsoil material should be used for backfilling or removed off site to an appropriate facility.
- Temporary spoil heaps should be stored > 50m from the watercourse and if this is not possible, they
 will need to be covered when not in use and surrounded by silt fencing to prevent washout of sediment
 with surface water run-off.
- Temporary spoil heaps should not be located within 10m of drainage ditches.
- Trenches should be excavated during dry periods where possible in short sections and left open for minimal periods, to avoid acting as a conduit for surface water flows.
- A buffer zone of 10m around natural watercourses should be implemented inside which no construction activities will take place, with the exception of augmented planting of native flora and the proposed bridge crossing. All personnel working on site should be trained in pollution incident control response.
- Appropriate information should be available on site outlining the spillage response procedure and a contingency plan to contain silt.
- Daily visual examinations of watercourses should be carried out by the contractor and recorded in the site diary.
- Erosion control measures, namely silt-traps, silt fencing and swales should be put in place prior to construction and as required while works progress across the site.
- The developer should ensure that the erosion control measures are regularly maintained during the construction phase.
- Access tracks should be capped as soon as practicably possible to cover exposed subsoils and as such reduce the concentration of suspended solids in the run-off.
- Capping materials should not contain finely graded materials which are likely to be washed into the drainage network and nearby watercourses. Shale, or larger and/or washed chippings lacking fine particulate matter are suitable.
- Additional silt fencing should be kept on site in case of an emergency break out of silt laden run-off.



- Wet concrete operations are not envisaged for this site within 10m of the watercourse. However, if wet
 concrete operations are required in such locations, a suitable risk assessment will be completed prior
 to works being carried out and a strategically located concrete washout area greater than 50m from
 drainage ditches will be provided. Only concrete chutes will be washed out on site; there should be no
 concrete wash out of trucks.
- Refuelling of plant during construction should only be carried out at a designated refuelling station location on site. Any fuel stored on-site will be contained in secured and bunded containers. Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits should be kept available on site, to ensure that any spills from the vehicle are contained and removed off site.
- Construction works should be carried out according to best practice with standard environmental controls in place to ensure protection of the study site (CIRIA 2010).

5.3 Habitats and Flora

No protected flora or habitats with links to Annex I were noted on site:

- The area of the proposed works should be kept to the minimum necessary, including all site clearance works, to minimise disturbance to habitats and flora.
- No removal of habitats or movement of construction machinery should occur outside of the development works area/footprint during the construction phase, where the works area/footprint should be clearly marked for associated site staff.
- Existing trees being retained at/near the site should be protected in line with current guidelines (i.e. Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post -Construction of National Road Schemes, NRA 2006a).

5.4 Invasive Non-native Flora

No invasive non-native flora were detected on-site.

5.5 Avifauna

• The clearance of scrub and trimming should be undertaken outside of the bird breeding season (March 1st to August 31st inclusive). This will help protect nesting birds.

5.6 Terrestrial Mammals

- A preconstruction otter survey should be undertaken to reconfirm the findings of the ecological appraisal.
- Breeding Hedgehog and Pygmy Shrew should be protected by the vegetation clearance exclusion period (March – August Inclusive).

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- A pre-clearance survey of other dense vegetation should be carried out by an ecologist to check for hibernating/breeding hedgehogs, and appropriate protection measures should be implemented if any are found.
- Mammal access to the development site should be maintained either through the incorporation of mammal access points at regular intervals (every 100m) along the perimeter fence or ensuring that a minimum gap of 200mm is maintained between the bottom of the perimeter fence and ground throughout. Such measures should be designed to allow small and medium sized mammals to pass through freely. In the case where access points are incorporated into the perimeter fence at regular intervals, such mammal access points should be designed in accordance with standard guidelines for the provision of mammal access (DMRB 1997), where openings should be at least 250mm high x 220mm wide.
- If open excavations are left in-situ overnight, measures should be taken to ensure that mammals do not become inadvertently trapped and potentially injured within such open excavations.

5.7 Bats

All culverts/bridges were checked for evidence and/or suitability for roosting bats with none showing any potential, since they consisted of smoothened concrete with no crevices for bats to take shelter. Several mature, ivy-covered trees provide potential roosting sites for bats, and the watercourses on site could potentially provide foraging / commuting habitat for bats. As it stands no trees offering potential roosting habitat to bats shall be impacted as a result of the proposed project however in the event that a tree needs to be removed then a bat survey would be required prior to felling to ensure that there is no impact to bats.

- If any roosts are found in the footprint of works during these surveys a relevant bat derogation licence shall be sought prior to construction works commencing and works should be carried out under the terms of the relevant derogation licence. This shall include any felling works being undertaken, and works should be timed and conducted in a manner to ensure that no bats are harmed as a result of felling. Relevant guidance including the NRA (2006b) guidelines for the treatment of bats during the construction of national road schemes should be adhered to.
- Construction operations within the proposed development site should take place during the hours of daylight where possible to minimise disturbances to bat species at night.
- Lighting shall not be left switched on overnight within the site. The use of lighting within the site can discourage bats from utilising the site during construction.
- Dark zones should be maintained within the park during the night to offer potential commuting and
 foraging habitats to bats. This includes the watercourse bisecting the park. Where lighting is required
 for health and safety reasons, bat friendly lighting should be used to ensure that bats are not displaced
 from the area and to prevent a barrier to the movement of bats through the site between habitats.



5.8 Other Fauna

- In the event that frog or newt spawn is observed within the proposed development footprint or ZoI, translocation to suitable receptor sites should be carried out under licence.
- Based on NRA Guidelines for the crossing of Watercourses during the construction of National Road Schemes (2008), in-stream works (i.e., bridge construction) should not be carried out in watercourses frequented by salmon or trout during the Annual Close Season. The duration of the season varies regionally within the period from the beginning of October to the end of February. The timing of works should always be considered on a site-specific basis and in agreement with the Inland Fisheries Ireland (IFI) because some rivers have late spawning salmonids.

5.9 General

In the event that fauna is found actively using features within or in close proximity to the proposed development footprint for breeding/roosting (e.g. bird nest, bat roosting) during the construction phase, works should cease immediately and the area should be cordoned off until advice is sought from a suitably qualified/experienced ecologist.

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RESIDUAL IMPACTS

With the implementation of the mitigation measures outlined in Section 5 the residual impacts on biodiversity are considered to be a Long-term Imperceptible Localised and Reversible Impact.

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APPENDIX 1

EPA (2017) Evaluation of Effects



Table 1: Probability of Effects (EPA, 2017)

Likely Effects	Unlikely Effects
The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

Table 2: Quality of Effects (EPA, 2017)

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

Table 3: Significance of Effects (EPA, 2017)

Significance of Effect	Description
Imperceptible	An effect capable of measurement but without significant consequences
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
Profound	An effect which obliterates sensitive characteristics

Table 4: Duration of Effects (EPA, 2017)

Duration of Effect	Description
Momentary Effects	Effects lasting from seconds to minutes
Brief Effects	Effects lasting less than a day
Temporary Effects	Effects lasting less than a year
Short-term Effects	Effects lasting one to seven years

Duration of Effect	Description
Medium-term Effects	Effects lasting seven to fifteen years
Long-term Effects	Effects lasting fifteen to sixty years
Permanent Effects	Effects lasting over sixty years

Table 5: Types of Effects (EPA, 2017)

Type of Effect	Description
Effect/Impact	A change resulting from the implementation of a project
Likely Effects	The effects that are specifically predicted to take place – based on an understanding of the interaction of the proposed project and the receiving environment.
Indirect Effects (a.k.a. secondary effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
Cumulative Effects	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
'Do Nothing' Effects	The environment as it would be in the future should the subject project not be carried out.
'Worst Case' Effects	The effects arising from a project in the case where mitigation measures substantially fail
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Reversible Effects	Effects that can be undone, for example through remediation or restoration
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).

Table 6: Definition of Terms – Source, Pathway, Receptor (EPA, 2017)

Term	Description
Source	The activity or place from which an effect originates
Pathway	The route by which an effect is conveyed between a source and a receptor.
Receptor	Any element in the environment which is subject to effects.
Effect/Impact	A change resulting from the implementation of a project



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