

Proposed Fuller's Folly Development, Newcastle West, Co. Limerick

Biodiversity Assessment



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1. INTRODUCTION

Ecofact was commissioned to undertake an ecology assessment (including bat survey) of a proposed development at Fuller's Folly, Newcastle West, Co. Limerick. The development will consist of a three-story building, with a café, toilet facilities, outdoor covered seating on the ground floor. The first floor will consist of a meeting room, gallery and interpretation space. The second floor will be a rooftop view deck. The development is proposed for a small area, covering a total area of 0.0477 ha, including for outdoor seating areas. An Appropriate Assessment (AA) Screening Report and an Environmental Impact Assessment Report (EIAR) have also been undertaken by Ecofact (2023) and accompany the current ecology report.

Desktop studies were completed for the proposed development site in order to gather information on the receiving environment. The current report therefore comprises a summary of the ecological condition of the site and identifies any key ecological features or receptors.

1.1 Legislative context

In Ireland, legislation exists on both a national and international level with the aim of protecting habitats and wild species (flora and fauna). The key legislation which provides protection to wildlife in Ireland is as follows:

- The Wildlife Act 1976
- Wildlife (Amended) Act 2000
- Flora (Protection) Order, 2022
- EU Habitats Directive (92/43/EEC)
- EU Birds Directive (2009/147/EC)
- Bern Convention
- Bonn Convention
- Derogation Licences

2. METHODOLOGY

2.1 Desk Study

A desktop review was carried to identify the previous records of protected species and designated areas of protection within the 2 km grid squares which includes the proposed development. A full bibliography of information sources reviewed is provided in the References section. Information sources reviewed include:

- National Parks and Wildlife Service (NPWS) website, Conservation Objectives, Site Synopsis and Natura 2000 forms;
- Protected species data on NPWS/National Biodiversity Data Centre (NBDC) online databases; and
- Online aerial imagery (Bing, Google Satellite).

Habitats on the survey site have been classified by aerial imagery, where suitable, and by a walkover survey, according to Fossit (2000) "*A Guide to Habitat in Ireland*".

The bat suitability of habitat in the study area for bats was obtained from the National Biodiversity Data



Centre database. This map provides a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats (Lundy *et al* 2011).

2.2 Site Visit

The site was visited on the 22nd of June 2023. A general walkover survey was carried out. Habitats were assessed and categorised as per '*A Guide to Habitats in Ireland*' by J.A. Fossitt (2000) and habitat maps were produced. The proposed development area was also inspected for evidence of ecological features of high conservation concern such as those flora and fauna that occur in the closest Natura 2000 sites.

Regarding bats, all potential bat roost features (PRFs), which includes trees and built structures within the footprint of the proposed development area were assessed in the field survey. The assessment of features involved careful inspection from the ground to identify evidence indicating the level of potential of each feature as a bat roost and / or the presence of bats. Key indications of potential as a roost habitat that were searched for in the inspection included, rot / knot / woodpecker holes, cracks and splits in stems and branches, cavities from branch tearing, detached bark, ivy growth, gaps between overlapping stems or branches and other hollows. Foraging and commuting habitat on the site for bats was also assessed.

The assessment had regard to the methodology outlined in:

- *Bat Mitigation Guidelines for Ireland v2* by Marnell *et al.*, (2022);
- *Bat Surveys for Professional Ecologists: Best Practice Guidelines 3rd Edition* by Collins (2016);
- *Bat Workers' Manual 3rd Edition* by JNCC (2004); and
- *Bat Tree Habitat Key* by Andrews and Gardener (2016).

An emergence watch and activity survey were undertaken at the proposed development site on the 22nd to 23rd June 2023. This was completed from 30 minutes before dusk to 2 hours after dusk. Two ecologists were present for the survey, one to the south of the site and the other to the east. The range of handheld detectors used included the BatBox Duet Bat Detector (both Heterodyne and Frequency Division) and the EchoMeter Touch 2 Pro. Bat species using the site during the course of each survey and notes on their behaviour and flight paths were recorded. Following emergence times, the activity survey portion was undertaken by walking transects surrounding the structures on the site, recording all bat species and their behaviour.

Cognisance of any other ecological features of interest such as potential for aquatic ecological interests nearby, the occurrence of any terrestrial invertebrates, reptiles or amphibians of conservation importance, and any invasive species of concern was also noted during the site survey.



3. DESCRIPTION OF PROJECT CHARACTERISTICS

3.1 Project Description

The proposed development involves the renovation of an existing building as a tourist attraction site, located in Newcastle West, in Co. Limerick. The existing building is a folly located to the southeast of Desmond castle and was built in the 1800's. The development will consist of a three-story building, with a café, toilet facilities, outdoor covered seating on the ground floor. The first floor will consist of a meeting room, gallery and interpretation space. The second floor will be a rooftop view deck. The development is proposed for a small area, covering a total area of 0.0477 ha, including for outdoor seating areas.

It is noted that very limited details have been provided in relation to the proposed project. Indeed, the only details provided have been a series of project drawings.



Figure 1 Location of Fuller's Folly development, in Newcastle West, Co. Limerick.



4. RECEIVING ENVIRONMENT

4.1 Designated Areas

4.1.1 Natura 2000 Sites

There are several Natura 2000 sites present in the wider area. All designated sites within a 15km radius of the proposed development site are shown in Figure 2.

The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA is located c. 4.4km west from the proposed development site. An Appropriate Assessment Screening (Ecofact, 2023) accompanies this report and states that impacts on the Natura 2000 network are unlikely, as the proposed development site is not located within a Natura 2000 site and is sufficiently, geographically separated from the Natura 2000 network.

4.1.2 Natural Heritage Areas

There are no Natural Heritage Areas (NHA) or proposed Natural Heritage Areas (pNHA) present within a 5km radius of the proposed development site. This is indicated in Figure 3. Carrigkerry bogs NHA is the closest NHA to the proposed development site and is located c. 8.0km northwest of the proposed development site. Glenstar Woods is the closest pNHA to the proposed development site and is located c. 5.8km to the northwest. There is no direct connection between any NHA or pNHA and the proposed development site.

4.1.3 Other

There is a known Lesser Horseshoe bat roost within a 5km radius of the proposed development (NPWS). There are no other designated sites, such as Ramsar Sites, or other protected areas within 5km of the proposed development site.

4.2 Habitats

The proposed development area has been anthropogenically modified and is located within Newcastle West town, in Co. Limerick. There are three habitats present on the survey site. The habitats consist of Buildings and artificial surfaces (BL3), Recolonising bare ground (ED3) and Stone walls and other stonework (BL1). The Arra river is adjacent to the site at the south end. Habitat types present within the proposed development area can be seen in Figure 4.

4.3 Flora

The dominant habitats at the proposed development site are Buildings and artificial surfaces (BL3) and Recolonising bare ground (ED3). Recolonising bare ground comprises areas artificial surfaces of tarmac, concrete or hard core have been invaded by herbaceous plants. Most of the typical colonisers are ruderals or weed plants. Common examples include Colt's Foot (*Tussilago farfara*), Nettle (*Urtica dioica*), Dandelion (*Taraxacum* spp.), willow-herbs (*Epilobium* spp.) and ragworts (*Senecio* spp.). In urban areas, recolonising bare ground can be important for wildlife and may support a diverse flora, typically with a high proportion of non-native species.



According to the National Biodiversity Data Centre records (NBDC, 2023), there are no records of species protected under the Flora Protection Order, 2022 as being present within the 2km national grid square (R23R) where the site is located. Floral species reported within the 2km national grid square in the area include those typical of aquatic habitats such as Yellow Iris (*Iris pseudacorus*), Yellow Water-lily (*Nuphar lutea*) and Water Horsetail (*Equisetum fluviatile*). As the Arra River flows adjacent to the study site, these species could also be present in proximity to the proposed development site.

Vegetation typical of urban environments has also been recorded in the 2km National Grid Square, including Primrose (*Primula vulgaris*), Ivy (*Hedera helix*), Holly (*Ilex aquifolium*) and Horse-chestnut (*Aesculus hippocastanum*) have also been recorded.

Cherry Laurel (*Prunus laurocerasus*), Evergreen Oak (*Quercus ilex*), Himalayan Honeysuckle (*Leycesteria formosa*), Indian Balsam (*Impatiens glandulifera*) and Sycamore (*Acer pseudoplatanus*) are all invasive plant species which have been reported adjacent to the proposed development site (NBDC, 2023). Invasive species are easily spread when ground is disturbed and considerations for the control of invasive species will likely need to be considered during any works.

4.4 Fauna

4.4.1 Non-volant mammals

According to the National Biodiversity Data Centre (NBDC, 2023), non-volant mammals which have been recorded within the 2km grid square (R23R) where the survey site is located include European Otter (*Lutra lutra*) and West European Hedgehog (*Erinaceus europaeus*), both of which are protected under the Wildlife Act and Bern Convention. The European Rabbit (*Oryctolagus cuniculus*), which is an invasive species, has also been reported within the 2km national grid reference square where the site is located. Otter may be adjacent to the site in the Arra River. The site is unlikely to be of much significance to hedgehogs, but they may use the area.

4.4.2 Volant mammals

4.4.2.1 Desk study

Table 1 below gives the suitability of the study area for the bat species found in Ireland (based on NBDC) along with their Irish Red List Status (from Marnell *et al.*, 2009). The overall assessment of bat habitats for the current study area is given as 33.67, which is considered to be a moderate level. Moderate habitat suitability is indicated for Soprano Pipistrelle (47), Common Pipistrelle (47) and Brown long eared bat (50). There are several mature trees at, and adjacent to, the site which may have bat roosting potential. Mature Ivy is also present and may provide suitable roosting sites. Likewise, the Fuller's Folly building itself may be suitable for roosting bats. There are no NBDC records of any bat sightings within the 2km national grid square where the site is located.

4.4.2.2 Daytime Inspection

A daytime inspection was undertaken on the 21st of June 2023. This involved an external inspection of the building. The survey site consists of an open courtyard area surrounded by stone walls and two buildings. The northern building is in a completed state of disrepair with the roof collapsing. The southern building, closest to the river is in good condition and from the ground the roof appeared to be still intact. On the outside walls of the buildings the stone was well sealed with no cracks or crevices visible. In the inside courtyard to the west there is a high level of ivy growth. There are also several cracks and crevices in the wall. Some of these were covered in cobwebs indicating they were not being



using by bats. Others were inspected and no bat droppings were recorded. Not all cracks or crevices could be inspected due to height and accessibility issues. The inner courtyard was overgrown and considered to provide some foraging and commuting habitat.

Table 1 Suitability of the study area for the bat species previously recorded in the Newcastle West, Co. Limerick area (based on the NBDC data). Irish Red list status is also indicated (based on Marnell *et al.*, 2009).

Common name	Scientific name	Suitability index	Irish red list status
All bats	-	33.67	
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	47	Least Concern
Brown long-eared bat	<i>Plecotus auritus</i>	50	Least Concern
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	47	Least Concern
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	10	Least Concern
Leisler's bat	<i>Nyctalus leisleri</i>	46	Near Threatened
Whiskered bat	<i>Myotis mystacinus</i>	21	Least Concern
Daubenton's bat	<i>Myotis daubentonii</i>	39	Least Concern
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	9	Least Concern
Natterer's bat	<i>Myotis nattererii</i>	34	Least Concern

4.4.2.3 Emergence/Activity Surveys

After the initial inspection an emergence and activity survey were undertaken by two ecologists. One ecologist focussed on the south face of the building and the other on the east. The temperature at the beginning of the survey was 14°C with no cloud cover, a very light breeze, and no precipitation. Insect activity was moderate throughout the survey.

The first bat was recorded at 10:29PM, 24 minutes before dusk. This was an unidentified pipistrelle which was first recorded emerging from the ivy on the west of the site. At 10:33PM two more Soprano Pipistrelle's were recorded emerging from the same area. At the same time two Soprano Pipistrelles were recorded foraging to the east of the site. Throughout the survey Soprano Pipistrelles were recorded foraging over the site and the river. These were mostly Soprano Pipistrelles with n=5 being the maximum seen at any one time. They would forage over the courtyard area, the grassland in front of the building and onto the river. A small number of Common Pipistrelles were also recorded. This was after emergence time, and they were likely just using the area to forage / commute. The first Common Pipistrelle was recorded at 11:13PM.

Over the course of the night there were c. 35 Common Pipistrelle bat passes. Leisler's Bat were recorded twice at 12:30AM. There was also one potential Brown Long-eared bat pass at 11:37PM. There is a small woodland area on the site where they are potentially foraging. There were also two Daubenton's bats recorded foraging on the Arra River. They were observed at the nearby footbridge and further upstream. These were recorded at c. 11.30PM.

The emergence survey results indicate that there is between 3-5 pipistrelles, most likely Soprano Pipistrelles, roosting in the ivy on the proposed development site. The building was also considered suitable for roosting Daubenton's bats however none were recorded emerging.

4.4.3 Birds

Aerial imagery indicates that there are several large trees on the site where passerines may nest. Birds recorded in the 2km grid square (R23R) include a diversity of species. Common species recorded in



the NBDC records include Blue Tit (*Cyanistes caeruleus*), Chaffinch (*Fringilla coelebs*), Coal Tit (*Periparus ater*), Common Blackbird (*Turdus merula*), Rook (*Corvus frugilegus*), Hooded Crow (*Corvus cornix*) and European Robin (*Erithacus rubecula*), amongst other species. Protected species recorded in the area (NBDC, 2023) which likely use the proposed development area include Woodpigeon (*Columba palumbus*), House Martin (*Delichon urbicum*), and Barn Swallow (*Hirundo rustica*).

A visit to the site was carried out on the 21st of June 2023. During this several bird species were recorded. Pigeons were recorded roosting in the Fuller's Folly building. This was in the northern section where parts of the roof have collapsed. A potential Grey wagtail nest was also recorded in the stonework of the building, but this was not active at the time of the survey. Sand Martin were recorded nesting in the bridge immediately downstream. Herron, Dipper and Mallard were all recorded on the river. There is also a rookery present in trees to the west. During the bat survey a Barn Owl was recorded flying over the building.

4.4.4 Aquatic ecology

There is a watercourse present adjacent to the boundary of the proposed development site. Therefore, there is the potential for aquatic species such as Otter (*Lutra lutra*) to be present adjacent to the site, for which the closest record is a sighting of spraint in 2015, immediately adjacent to the site boundary. Common frog has also been reported c. 700m west of the proposed development site, with the most record in 2020. There is also the possibility for freshwater fish species, such as Brown trout, to be present adjacent to the study site, as well as downstream. Although there are embankments present, these are lower on the western side of the site boundary and therefore the possibility of some aquatic species, such as Otter, to occasionally be present within the area can not be ruled out.

4.4.5 Terrestrial Invertebrates

Two invertebrate species of interest have been recorded within the 2km national grid square where the site is located. Both the Gipsy Cuckoo Bee (*Bombus (Psithyrus) bohemicus*) and the Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*) are Near Threatened species and have been reported within Newcastle West. Although there are no records with the NDBC, Red Mason Bee (*Osmia bicornis*) or leafcutter bee species (*Megachile spp.*) may be using the Fuller's Folly building, as these species can often utilise crevices in walls.

4.5 Water Quality

Water quality of the Arra River upstream of the proposed development site was last monitored in 1993 and was assigned a status of Q4, of 'Good' (Station: RS24A040400). Downstream of the proposed development site, Station RS24A040500 was last monitored in 2020 and water quality was assigned a value of Q3 or 'Poor'. The Arra River is considered to be an 'at risk' waterbody for meeting Water Framework Directive (WFD) objectives by 2027 and was assessed as having 'poor ecological conditions' when last assessed in 2020 (EPA Website). Adjacent to the study site, the river is contained within embankments, and this may therefore limit the ecological potential of the river adjacent to the proposed development site. During the site visit water levels appeared low and there was significant filamentous algae growth.

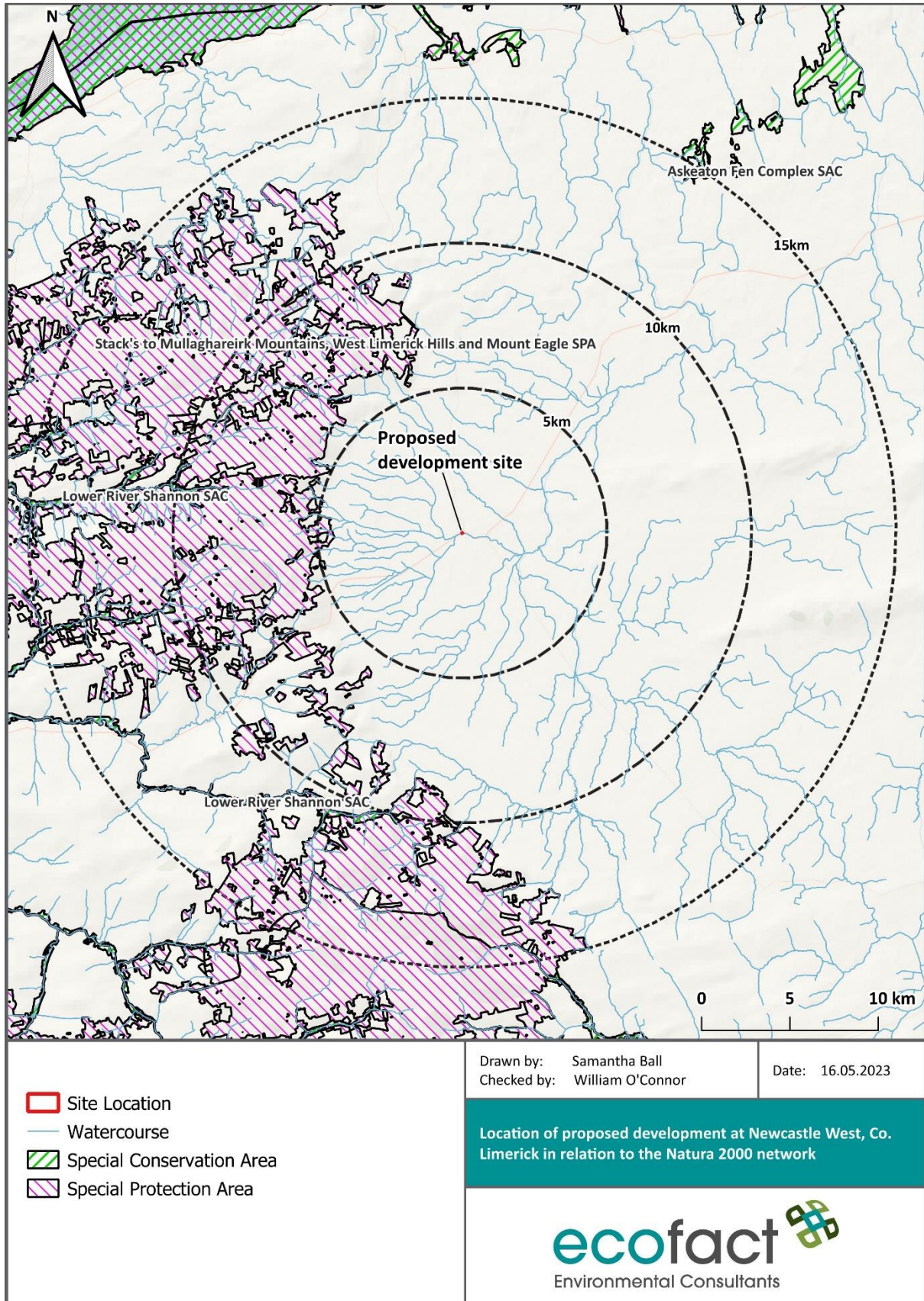


Figure 2 Proposed development location in Newcastle West, Co. Limerick showing Natura 2000 Sites and Watercourses within 5, 10 and 15km of the proposed development.

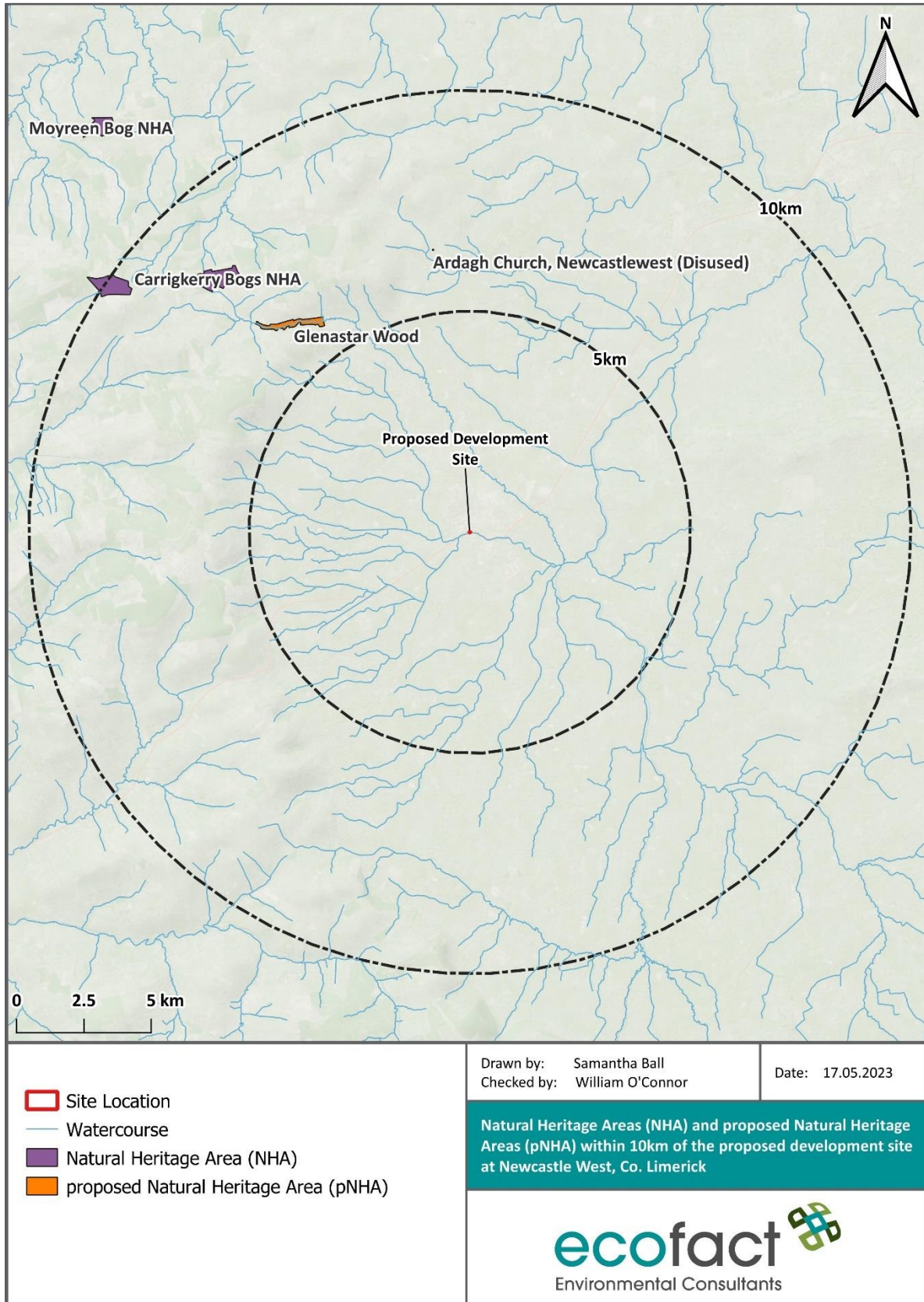


Figure 3 Natural Heritage Areas and proposed Natural Heritage Areas within a 10km radius of the proposed development site.



Figure 4 Location of proposed development at Fuller's Folly, Newcastle West, Co. Limerick showing habitats present on site.



5. IMPACTS

It is considered that there is potential for some disturbance to wildlife that may be using the area. This is particularly the case for bat species, all of which are protected under Annex IV of the Habitats Directive. It has been confirmed that bats are roosting at the proposed development site. Works on this building would result in the permanent loss of this roost. The works will also result in increased noise and human activity on the site. Bats using the building could be significantly disturbed, as well as displaced, and potentially killed, during the demolition works. Bats using the foraging / commuting habitat on the site could be disturbed by the sudden change in available habitat. Excessive lighting during the construction and operational phase could also result in disturbance impacts. Lighting on the site is predominantly on the southern face of the building, coming from street light. These also illuminate the river. Any additional lighting on the site is likely to cause disturbance and displacement impacts. The highest bat activity on the river was in the dark areas. There should be no additional light spill onto the river. Additional artificial lighting on site could further displace bats on the site. Soprano pipistrelles were recorded foraging and commuting across the courtyard and between the two main structures on site. The proposed development would result in the permanent loss of this habitat. Therefore, any works which could result in the loss or disturbance of bat roosts will require a derogation license.

It is currently uncertain whether tree and vegetation removal is proposed as part of the current development project – as no project details apart from drawings have been provided. It is assumed that the vegetation in the inner courtyard will be removed. This provides insect production and foraging activity for bats. In addition, the ivy on the site is providing roosting habitat for bats and potential bird nesting habitat. There is one tree onsite which was considered to have low potential for roosting bats.

Pigeons were recorded roosting in the building. One unidentified bird nest, which was not active was also recorded in a crack in the stonework. Therefore, if works are undertaken during the bird nesting season this will likely impact birds present. Under the Wildlife (Amended) Act 2000 all birds are protected. It is an offence to disturb nesting birds and a derogation licence may be required.

Otter are also strictly protected under Annex IV of the Habitats Directive, Appendix II of the Bern Convention and the Wildlife Act. As there is some evidence of otter use at the site previously (i.e., spraint from 2015), mitigation will be provided.

As the project is located inside a watercourse contaminated runoff and water quality impact are a potential issue. As café with toilet facilities will also be developed but no details of waste water treatment have been provided.



6. MITIGATION

Firstly, a detailed Construction Environmental Management Plan (CEMP) should be drawn up for the proposed development. This plan should include sections detailing the containment of contaminated run-off, noise, dust, invasive species, and waste. In addition to the CEMP, a detailed site-specific Method Statement should be prepared. These documents must follow best practice procedure and guidelines, having due regard to the relevant sections of the following:

- IFI, (2010) '*Biosecurity Protocol for Field Survey Work*';
- IFI, (2016) '*Guidelines of protection of Fisheries during construction works in and adjacent to waters*';
- NRA, (2010) '*The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*';
- CIRIA (2006) '*Control of Water Pollution from Linear Construction Projects- Site Guide (C649)*'; and
- CIRIA (2005) '*Environmental Good Practice – Site Guide (C650)*'.

The site is sensitive due to its location beside a watercourse and this is why a CEMP will be required. Details of the waste water treatment for the toilet facilities will need to be provided.

Any disturbance to wildlife during the construction phase is likely to be localised. A bat roost has been confirmed at the proposed development site. Therefore, no works or activities potentially resulting in disturbance of this roost, are permitted in the absence of a derogation license from National Parks and Wildlife Service (NPWS). This derogation licence is required under Regulation 25 of the EC (Birds and Natural Habitats) Regulations 2011 – 2021 and will be obtained from the NPWS in advance of any works. Disturbance of a known bat roost is a notifiable action under current national and European legislation. In addition, works must occur outside of the active bat survey season, with works permitted from the end of September to the end of March.

Any artificial additional lighting should follow Bat Conservation Ireland's *Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers* (2010). Light spill, both current and proposed, should be minimised by using shields, masking or louvres. Light columns should be kept as low as possible. Some light restrictions should be considered during dark hours. Mercury or metal halide lamps should be avoided as these have a greater impact on bats, as they attract high levels of insects. Low pressure sodium lights have a minimal effect on bats and therefore should be preferred.

Site clearance, vegetation removal and any demolition should be undertaken outside the bird nesting season which takes place from the 1st of March to the 31st of August. Works should only be undertaken during daylight hours to avoid disturbance impacts on otter.

Biosecurity measures should follow NRA guidelines '*The Management of Noxious Weeds and Non-native Invasive Plant Species on National Roads*' (NRA, 2010) and the IFI guidelines '*Biosecurity Protocol for Field Survey Work*' (IFI, 2010). Any additional planting or landscaping should use native species. To enhance foraging habitat on the site, native night-scented plants should be considered as well as some native hedgerow / tree species. Pruning that is required should be kept to a minimum.



7. CONCLUSION

The current report outlines the results of an ecological survey of a proposed development at Fuller's Folly, Newcastle West in Co. Limerick. The proposed development site covers an area c. 0.0477 ha in size, including for outdoor seating areas. The proposed development consists of a three-story building, with a café, toilet facilities, outdoor covered seating on the ground floor. The first floor will consist of a meeting room, gallery and interpretation space. The second floor will be a rooftop view deck.

Bats are roosting and foraging/commuting at the proposed development site. It is noted that the overall area has a moderate suitability index for bats (NPWS website). Demolition and vegetation clearance should not take place during the active bat season (late August to late October/early November) nor within the bird nesting season (1st March to the 31st of August). It is illegal to remove or cause disturbance to an active bird nest during the bird nesting season under the Wildlife Act 1976 (2000).



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PLATES



Plate 1 Proposed development site showing Arra River (not included in site).



Plate 2 Eastern side of the proposed development building. The structure to the rear is where the roof has collapsed.



Plate 3 Southern façade of the building. The stonework here was in good condition and well sealed.



Plate 4 Inner courtyard showing ivy which provides suitable bat roosting habitat.

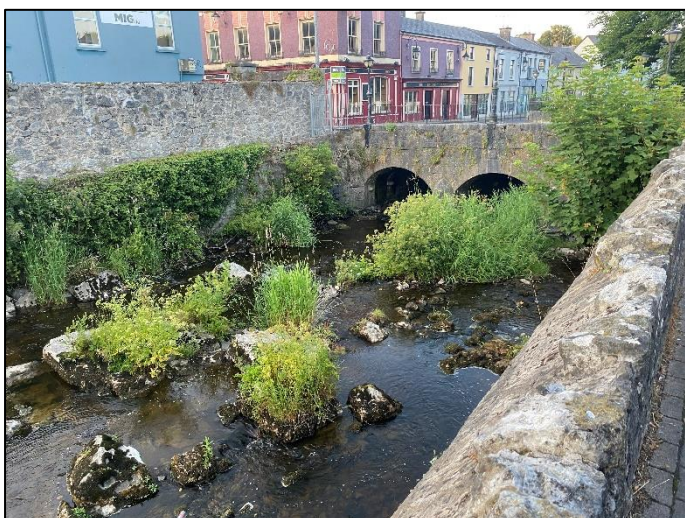


Plate 5 Arra River adjacent to the proposed development. A Dipper was recorded here, and Sand Martins were nesting.

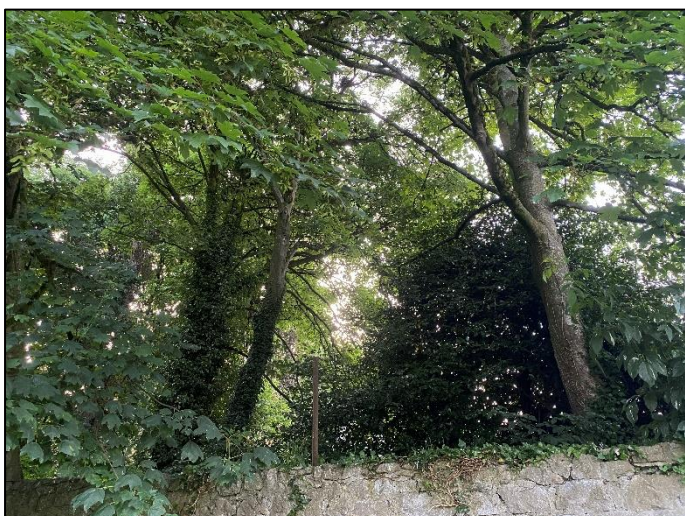


Plate 6 Trees nearby. There was a rookery in this area.



Plate 7 Ecologist using a bat detector during the emergence survey.



Plate 8 Light spill onto the proposed development site and the Arra River.



Plate 9 One of the many crevices in the stone walls at the proposed development site.