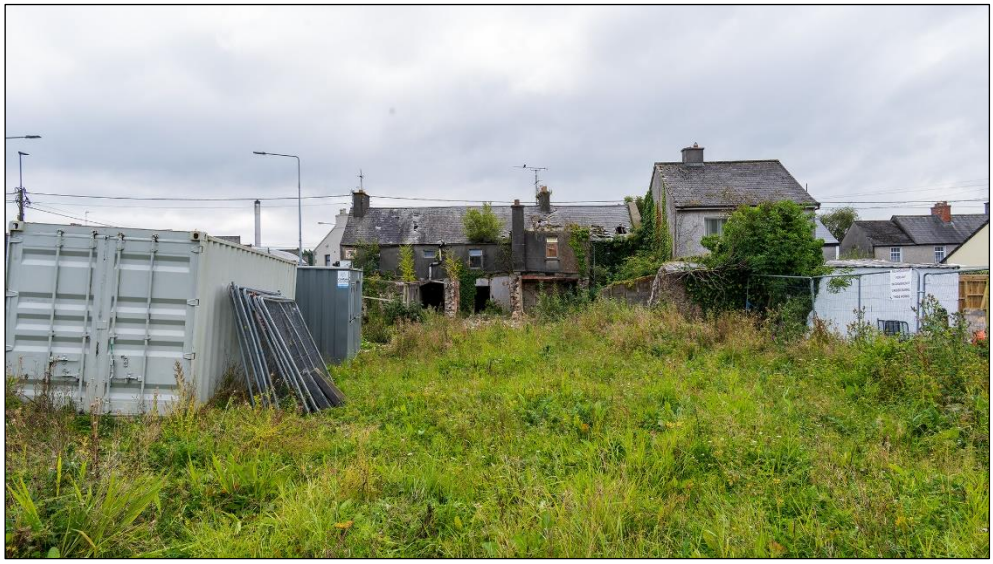
Social Housing Development at Grove Street, Roscrea, Co. Tipperary



BAT SURVEY

(Version 30th of September 2024)

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Date	Revision	Status	Authors / Licenced bat ecologists	Reviewed By
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1. INTRODUCTION

Ecofact were commissioned to undertake a bat survey of the site of a proposed Social Housing Development at Grove Street, Roscrea, Co. Tipperary.

The current survey involved a site inspection and an emergence / activity survey. The survey was completed in early September 2024 in ideal weather conditions during the main bat activity season.

The site is location is given in Figure 1 and Figure 2 below. The current report provides the results of a daytime inspection, emergence watch, and activity survey. The purpose of the survey was to establish if bats were present or not, and to recommend any actions that are necessary to protect bats.

1.1 Bat species in Ireland

There are eleven recorded bat species in Ireland, nine of which are considered resident on the island. Eight resident bat species and one of the vagrant bat species are members of the Vespertilionidae family. The ninth resident species is the Lesser Horseshoe Bat *Rhinolophus hipposideros*, which belongs to the Rhinolophidae family.

The resident Irish bat species are:

- Daubenton's bat (*Myotis daubentionii*)
- Whiskered bat (*Myotis mystacinus*)
- Natterer's bat (*Myotis nattereri*)
- Leisler's bat (*Nyctalus leisleri*)
- Nathusius' Pipistrelle (*Pipistrellus nathusii*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Brown Long-eared bat (*Plecotus auritus*)
- Lesser Horseshoe Bat (*Rhinolophus hipposideros)*

Other bat species (vagrants) recorded are:

- Brandt's bat (*Myotis brandtii*)
- Greater horseshoe bat (*Rhinolophus ferrumequinum*)

1.2 Legislation Relating to Bats

Bats are strictly protected under both national and international law. The purpose of this legislation is to maintain and restore bat populations within their natural range. This implies that the habitats on which they rely and the ecology of their life cycles should not be compromised by human activities. Where activities have the potential to compromise bat populations, measures are required to be put in place to avoid impacts or compensate and mitigate for those impacts. The key legislation which provides protection to bats is outlined below.

1.2.1 Wildlife Act 1976

In the Republic of Ireland, all bats and their roosts are protected under Schedule 5 of the *Wildlife Act 1976* (amended 2000). It is unlawful to disturb either without the appropriate Licence.

1.2.2 EU Habitats Directive

In addition to domestic legislation bats are also protected under the *EC Directive on the Conservation of Natural habitats and of Wild Fauna and Flora* (Habitats Directive 1992). This Directive seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All bat species are protected under Annex IV of the EU Habitats Directive, while the lesser horseshoe bat (*Rhinolophus hipposideros*) is listed under Annex II. Member states are required to designate Special Areas of Conservation for all species listed under Annex II in order to protect them. The EU Habitats Directive has been transposed into Irish law with the European Communities (Birds and Natural Habitats) Regulations 2011.

A total of 41 SACs have been designated for the Annex II species lesser horseshoe bat (1303), of which nine have also been selected for the Annex I habitat 'Caves not open to the public' (8310).

1.2.3 Bern and Bonn Conventions

Ireland has also ratified two international conventions which afford protection to bats amongst other fauna. These are known as the 'Bern' and 'Bonn' Conventions. *The Convention on the Conservation of European Wildlife and Natural Habitats* (Bern Convention 1982), in relation to bats, exists to conserve all species and their habitats. *The Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries, which covers certain species of bat.

1.2.4 Derogation licences

All bat species are strictly protected under Annex IV of the EU Habitats Directive, while the Lesser Horseshoe Bat is listed under Annex II of the Directive. A derogation license will therefore be required under Regulation 54 European Communities (Birds and Natural Habitats) Regulations 2011 – 2021 before any development works on the site can take place. Disturbance of a known bat roost is a notifiable action under current national and European legislation.

It is an offence, under Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011 ('the 2011 Regulations') to:

1. Deliberately capture or kill a bat in the wild;
2. Deliberately disturb a bat particularly during the period of breeding, rearing, hibernation and migration;
3. Damage or destroy a bat's breeding site or resting place, or;
4. (Keep, transport, sell, exchange, offer for sale or offer for exchange any bat taken in the wild, other than those taken legally before the Habitats Directive before the Habitats Directive was implemented.

A person may apply to the Minister under Regulation 54 of the 2011 Regulations for a derogation licence to carry out one or more of these prohibited activities. But, the Minister may only grant such a derogation licence if three criteria are met.

Firstly the Minister may only grant a derogation licence if it is for one of the following specified reasons listed in Regulation 54:

In the interests of protecting wild fauna and flora and conserving natural habitats;
To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;

In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and the beneficial consequences of primary importance for the environment;

For the purpose of research and education, of repopulating and introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plats, or;

To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of bats.

Secondly, the Minister may only issue a derogation if there is no alternative to carrying out the prohibited activity. The first aim of the developer, whether from a private company or a public authority, working with professional advice, should be to entirely avoid any potential impact of a proposed development on bats and their breeding and resting places. Alternatives may involve redesigning a development so that bat roosts, and associated commuting routes and feeding areas are kept intact and that bats are not disturbed, for example by inappropriate lighting. It should be noted that the European Commission has a specific understanding of satisfactory alternative solution. "*An alternative solution cannot be deemed unsatisfactory merely because it would cause greater inconvenience or compel a change in behaviour*" (European Commission, 2021, page 13)2. Decisions about what solution is satisfactory must be science-based and should solve the problem of how to strictly protect the bats in light of the development.

Thirdly the Minister may only grant a derogation if it is not detrimental to the maintenance of the populations of bats at a favourable conservation status (FCS) in their natural range. There is case law from the Court of Justice of the European Union (CJEU) to back this up. One example is the Finnish Wolf Case C-674/17. The ruling establishes that the Member State must "*clearly and precisely*" identify in the derogation what the objectives of the derogation are. It must also establish that the derogation is capable of achieving those objectives and demonstrate that there is no satisfactory alternative. Cumulative effects of derogations must be taken into account when issuing derogations. The maximum number of all derogations must not be detrimental to the maintenance or restoration of the population at FCS. Consideration must be given to other human causes of mortality. Any risk to FCS must be ruled out by detailed conditions based on the level of population, its conservation status and its biological characteristics. The conditions must be precisely defined and they must be monitored to ensure they are implemented. If any of these three criteria are not satisfied, the Minister cannot issue a derogation licence. It must never be assumed that a derogation licence will automatically be granted. In summary, it is clear that a developer must first look to avoid all impacts on bats. This may mean looking at alternative solutions and redesigning the project accordingly. If this is not possible, the developer needs to check whether there are grounds to apply for a derogation licence, based on the reasons given in Regulation 54 of the Habitats Regulations. When applying for a derogation licence the developer must clearly state the reason and describe in detail all alternative solutions which were given serious consideration. Any mitigation intended to ensure that there is no impact or minimal impact on the bats must be clearly described in detail, giving examples of how it worked in other places.

If a derogation licence has been refused by the Minister, any aspect of the development for which the derogation licence was sought, must not go ahead, no matter what other permissions are in place.

The Court of Justice of the European Union (CJEU) judgement (Hellfire Massey C166/22) held that derogation licences should be applied for and granted if needed, before planning consent is considered so that the planning consent reflects the need to comply with Article 12 of the Habitats Directive 92/43/EEC.

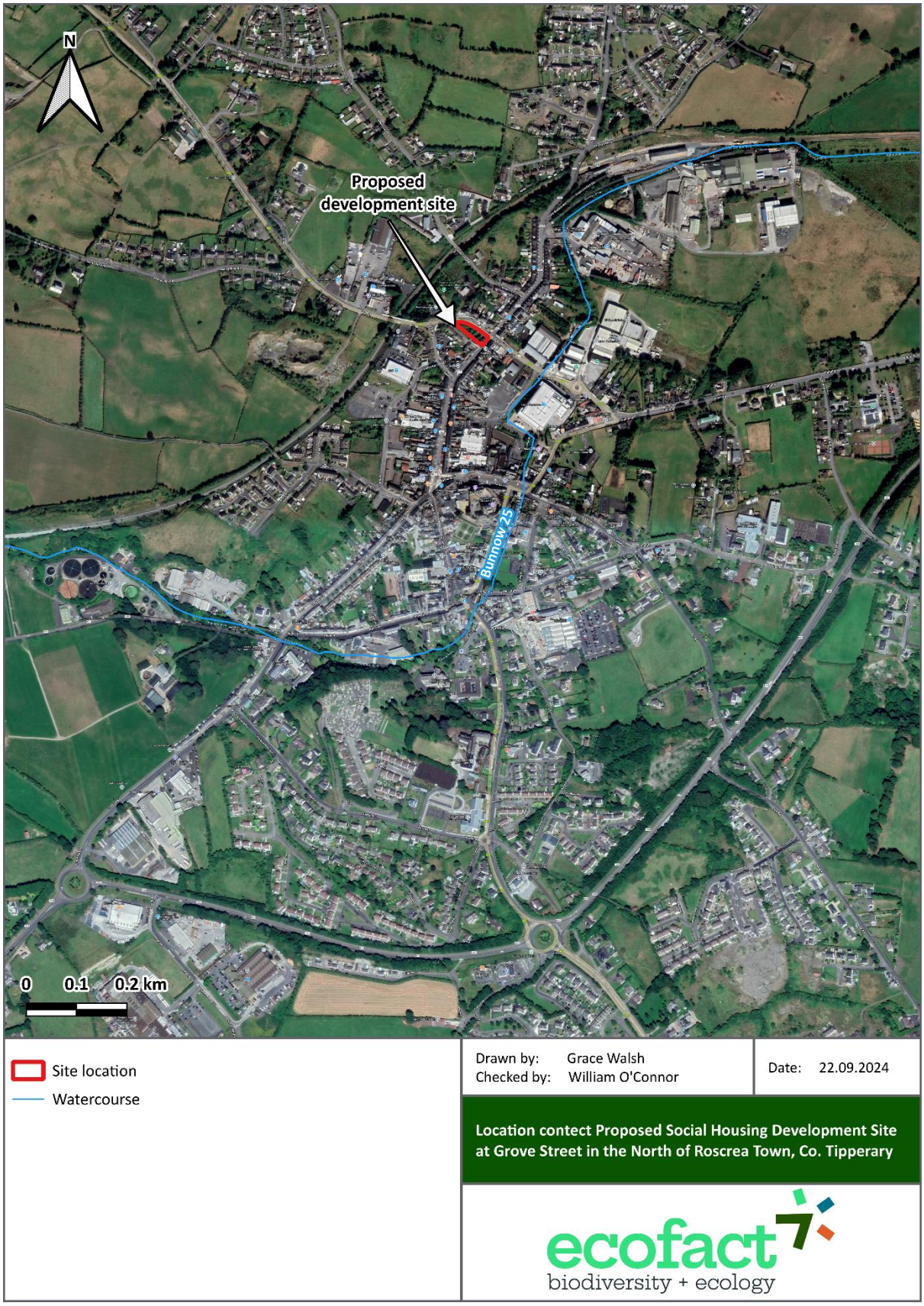

Figure 1 Location of subject site at Grove Street, Roscrea, Co. Tipperary

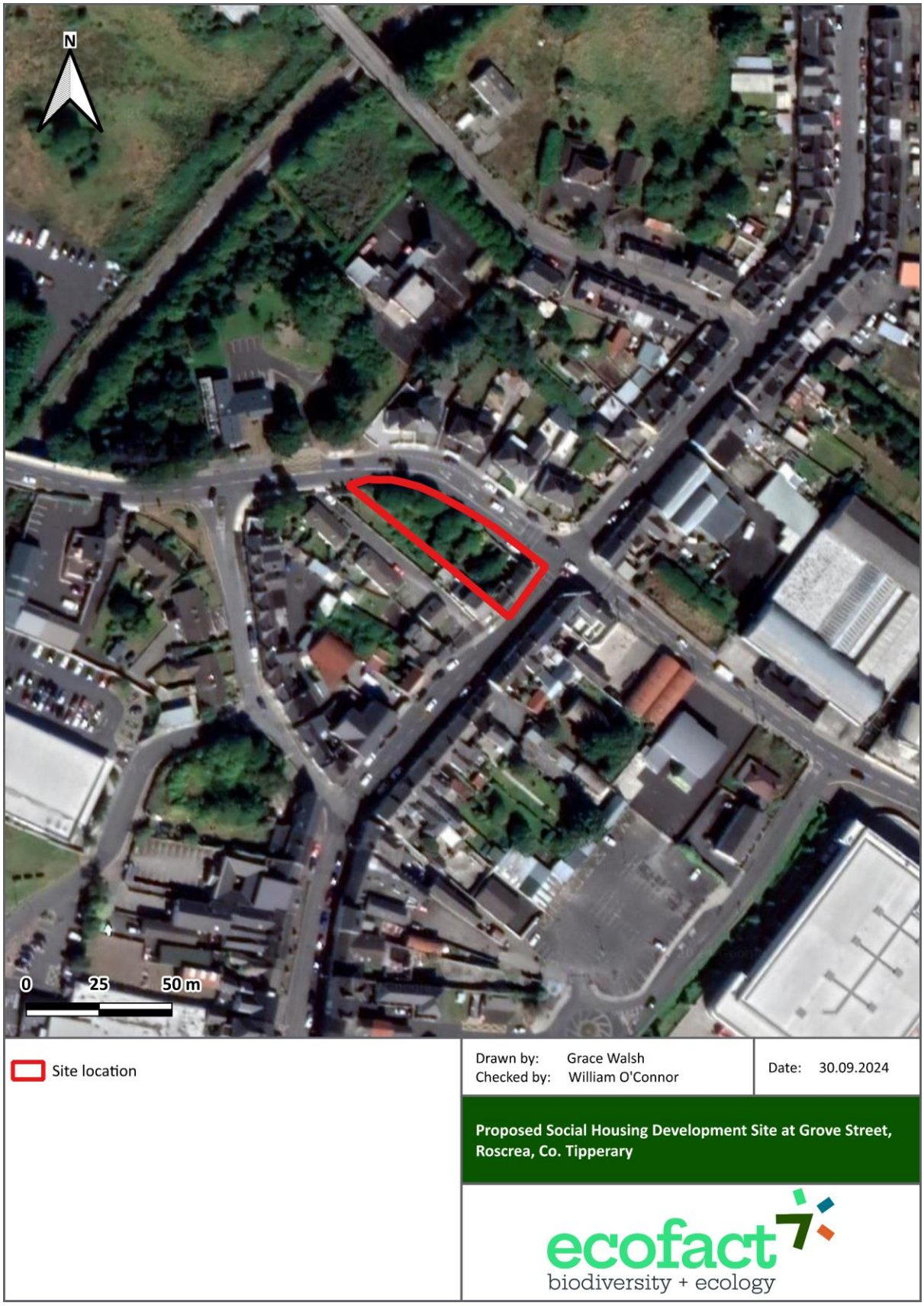

Figure 2 Location of subject site at Grove Street, Roscrea, Co. Tipperary (zoomed to site).

2. METHODOLOGY

2.1 Guidelines

The survey and assessment had regard to the methodology outlined in:

- *Bat Mitigation Guidelines for Ireland v2* by Marnell *et al*., (2022)
- *Bat Tree Habitat Key (BTHK)* by Andrews, H (2018).
- *Bat Surveys for Professional Ecologists: Best Practice Guidelines 3rd Edition* by Collins (2016)
- *Guidance on the strict protection of certain animal and plant species under the Habitats Directive in Ireland* by NPWS (2021)
- *Bat Workers' Manual 3rd Edition* by JNCC (2004) and
- *British Bat Calls: A Guide to Species Identification* (Russ, 2012).

Table 1 Definition of bat roost types adapted from Collins (2016).

Roost Type	Definition
Day Roost	A place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.
Night Roost	A place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.
Feeding Roost	A place where individual bats or a few individuals rest or feed during the night but are rarely present by day.
Transitional/occasional Roost	Used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Swarming Site	Where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.
Mating Sites	Where mating takes place from late summer and can continue through winter.
Maternity Roost	Where female bats give birth and raise their young to independence.
Hibernation Roost	Where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
Satellite Roost	An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

2.2 Desk study

The bat suitability of habitat in the study area for bats was obtained using the National Biodiversity Data Centre (NBDC) 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 visualization 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). The NBDC online National Bat Database of Ireland was also accessed to review bat records in the study area.

2.3 Field Surveys

The was visited on the 6th of September 2024. This survey involved a daytime inspection of the site during daylight hours. The surveys involve looking for evidence of roosting bats including live bats, remains of dead bats, droppings, staining, and feeding remains.

An emergence and activity survey was undertaken following the site inspection on the 6th of September 2024. The survey extended over a full night and included the use of two static bat detectors.

The surveys involved the use of bat detectors (Elekon Batscanner, Echo Meter Touch Pro 2, and Anabat Express units). Bat detectors with ultrasonic microphones are used as the ultrasonic calls produced by bats cannot be heard by human hearing.

Data recorded on the Anabat Express units was downloaded and analysed using Anabat Insight software. Bat Calls were identified to species level (where possible) with reference to *British Bat Calls: A Guide to Species Identification* (Russ, 2012). Audio files are a maximum of 15 seconds long and each audio file is taken as a bat pass for each bat species recorded within the audio file. Each bat pass does not equate to the number of individuals of bats flying in vicinity of the recording device but is representative of bat activity levels. Some species such as the pipistrelles will continuously fly around a habitat and therefore it is likely that a series of bat passes within a similar time frame (i.e. separate audio files within a small time frame) is one individual bat. On the other hand, Leisler's bats tend to travel through an area quickly and therefore an individual sequence of echolocation calls or bat pass is more likely to be indicative of individual bats.

2.4 Limitations

The weather conditions were ideal for the surveys and it was completed within the appropriate season. As with any survey of this type several of the bat passes could not be identified.

3. RESULTS

3.1 Desk Study

The National Biodiversity Data Centre (NBDC) maps landscape suitability for bats based on Lundy *et al*., (2011). 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. 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 36.78, which is considered to be Low. However, the rating for a number of bat species (Soprano Pipistrelle, Common Pipistrelle, Leisler's bat) is moderate.

Table 2 Suitability of the study area for the bat species previously recorded in the Leixlip area (based on the NBDC data). Irish Red list status also indicated (based on Marnell *et al.,* 2009).

Common name	Scientific name	Suitability index	Irish red list status
All bats		36.78	
Soprano pipistrelle	*Pipistrellus pygmaeus*	47	Least Concern
Brown Long-eared bat	*Plecotus auritus*	50	Near Threatened
Common Pipistrelle	*Pipistrellus pipistrellus*	54	Least Concern
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	3	Least Concern
Leisler's bat	*Nyctalus leisleri*	52	Least Concern
Whiskered bat	*Myotis mystacinus*	39	Least Concern
Daubenton's bat	*Myotis daubentonii*	36	Least Concern
Nathusius' Pipistrelle	*Pipistrellus nathusii*	2	Least Concern
Natterer's bat	*Myotis nattereri*	48	Least Concern

3.1.1 Previous Records

According to the National Bat Database of Ireland as viewed on the National Biodiversity Data Centre, the closest bat record is from approximately 2km north of the subject site and was for a Common Pipistrelle. There are no other records in the general area of the site. Bats are generally under recorded in Ireland and records available for a particular are often limited.

The National Bat Database of Ireland was accessed to review bat records within 2km of the proposed development site. There is a record of a Leisler's bat *Nyctalus leisleri* roost c. 2km from the proposed development site. This is the closest record and there are no other records within 2km.

Bats are generally recorded and the absence of records does not mean that there are no other bat roosts in the general area. Bats can be found in variety of habitats and the more common species are likely to occur throughout Roscrea town in small numbers. The aerial photography of the site was reviewed and there were a number of trees on the site visible in the most recent aerial photography layer. It is not known when these trees were removed. There are also a number of mature trees located to the northeast of the site that may provide bat habitat. However, there is a general lack of foraging habitat and given this is an urban area there is likely a significant amount of artificial lighting which would disturb bats. There are some bigger green areas but these are located more so towards the outskirts of the town. There are some small woodland areas to the south of the town centre also. There are large green areas near these small woodlands which could potentially be used for foraging by bats. There are no particular areas of optimal habitat for bats in Roscrea town.

3.2 Field Survey

3.2.1 Daytime Inspection

The site is set in an urban area near the centre of Roscrea. The trees on the site had already been removed and some site preparation works had already taken place. The derelict building on the site had not been affected. This building was not considered safe to enter and the inspection was undertaken from the outside only. This building was considered to have potential roosting features that could be used by bats. The building is in very poor repair and bats can use any building like this. However, the overall setting and site had low bat potential due to its location within the town and the fact that the trees on the site had already been removed.

3.2.2 Emergence and activity survey

A total of at least four species of bat were recorded during the survey. The most frequent bat species recorded was Common Pipistrelle. Small numbers of this bat species were confirmed to be roosting in the building (<5 individuals). The next most frequent bat species recorded was Leisler's bat. This bat species was recorded flying high overhead and was not roosting on the site. Soprano pipistrelles and Myotis bats were also detected but these individual bats were not roosting on the site.

On Anabat A, a total of 58 bat passes were recorded on the night of the September 5th to 6th of September 2024. Each bat pass does not equate to the number of individuals of bats flying in vicinity of the recording device but is representative of bat activity levels. Some species such as the pipistrelles will continuously fly around a habitat and therefore it is likely that a series of bat passes within a similar time frame (i.e. separate audio files within a small time frame) is one individual bat. The total number of bat passes and the percentage of passes is shown in Table 3. Common pipistrelle accounted for most of the bat passes and were first recorded at 20:30pm. The last Common pipistrelle was recorded at 06.15am. Common pipistrelle bat passes were recorded throughout the night. There was one Soprano pipistrelle, and one unidentified pipistrelle recorded at 21.32pm and 6.13am respectively. The other species recorded was Leisler's bat. They were recorded first at 00.40am and lastly at 5.32am.

On Anabat B, a total of 43 bat passes recorded. Of these, the majority were again Common Pipistrelle. The first was recorded at 22.58pm and the last at 4.28am. Common pipistrelle were recorded throughout the night. There were 9 Leisler's bats recorded, the first at 00.40am and the second at 5.32am, these are the same times as on Anabat A and are very likely to be from the same bats. There was one *Myotis* sp. recorded at 2.39am.

The static detector results were very similar to the observations make and it is confirmed that small numbers of Common Pipistrelle were roosting in the building (<5 individuals).

Table 3 Results from Anabat Express Static detector A on the 5th to 6th September 2024.

Common name	Species name	No.	%
Soprano pipistrelle	*Pipistrellus pygmaeus*	1	1.72
Common Pipistrelle	*Pipistrellus pipistrellus*	46	79.31
Unidentified pipistrelle	*Pipistrellus spp.*	1	1.72
Leisler's bat	*Nyctalus leisleri*	10	17.24
Myotis	*Myotis* spp.	-	-
Total		**58**	

Table 4 Results from Anabat Express Static detector B on the 5th to 6th September 2024.

Common name	Species name	No.	%
Soprano pipistrelle	*Pipistrellus pygmaeus*	0	-
Common Pipistrelle	*Pipistrellus pipistrellus*	33	76.74
Unidentified pipistrelle	*Pipistrellus spp.*	0	-
Leisler's bat	*Nyctalus leisleri*	9	20.93
Myotis	*Myotis* spp.	1	2.33
Total		**43**	

4. IMPACTS

The required mitigation measures, as detailed in Section 5, include timing works outside peak bat activity periods, conducting works under a derogation license, minimising lighting impact, and creating new roosting environments for bats. The general potential impacts are outlined below.

4.1 Roost Habitat Loss

All bats and their roosts are ***strictly protected*** in Ireland and listed under Annex IV of the EU Habitats Directive. The EU Habitats Directive has been transposed into Irish law with the *European Communities (Birds and Natural Habitats) Regulations* (2011) (S.I. No. 477/2011). All bat species are also protected here under the *Wildlife Act* (1976) and *Wildlife (Amendment) Act* (2000) (S.I. No. 38 of 2000). Impacts on bats may also be the subject of claims under the *European Communities (Environmental Liability) Regulations* (2008) (S.I. No. 547/2008) where bat and their roosts may have been adversely affected by unauthorised activities.

No works can take place on the building in the absence of a derogation licence. The building is a confirmed bat roost. The evidence points to this probably a minor satellite roost used by small numbers of male or non-breeding female Common Pipistrelle bats. Works on the building will result in the loss of a roost – so mitigation and a derogation licence will be required a precaution. It is noted that any derelict building could, at any time, be used by roosting Pipistrelles. It is not an unusual finding and this is a common an adaptable bat species. There are currently no trees on the site so there are no tree roosts present.

4.2 Foraging / Commuting Habitat Loss

There are currently no trees on the site so there is very limited bat foraging and commuting habitat present. It is not known when the teres on the site were removed.

4.3 Disturbance and Displacement

The proposed works will disturb / displace bats that are roosting on the proposed development site.

4.4 Lighting

The proposed development will likely result in increased lighting on the proposed development site which can cause habitat loss. Mitigation will be required.

5. MITIGATION

5.1 License Requirements

As bats are roosting on the proposed development site a derogation licence is required for all works. This derogation licence is required under Regulation 54 of the European Communities EC (Birds and Natural Habitats) Regulations 2011 and will be obtained from the National Parks and Wildlife Service in advance of any works taking place on the site. Disturbance of a known bat roost is a notifiable action under current national and European legislation.

All bats and their roosts are **strictly protected** in Ireland and listed under Annex IV of the EU Habitats Directive. The EU Habitats Directive has been transposed into Irish law with the European Communities (Birds and Natural Habitats) Regulations (2011) (S.I. No. 477/2011). All bat species are also protected here under the Wildlife Act (1976) and Wildlife (Amendment) Act (2000) (S.I. No. 38 of 2000). Impacts on bats may also be the subject of claims under the European Communities (Environmental Liability) Regulations (2008) (S.I. No. 547/2008) where bat and their roosts may have been adversely affected by unauthorised activities.

These licences are routinely granted for works like this. Works on any derelict buildings like the subject ones will often require this licence to be in place.

5.2 Avoidance Mitigation

Works can be planned for outside active bat season and completed under a derogation licence. Enabling works should take place during the period October to February. It is likely that bats do not use the buildings on the proposed development site during the winter months. Works which involve the removal of roosts should take place between October and the end of March to avoid the possibility of any bats being present. It is not envisaged that any bats are present during the winter. However, if bats are recorded during any point the construction works NPWS must be immediately contacted.

Demolition and vegetation clearance should not take place within the bird nesting season which runs from 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).

5.3 Compensatory roosts

It may be possible to accommodate the bats in the new development in a managed way. An artificial bat roost compartment could be installed that can be accessed via bat tiles. This artificial roost would need to be designed and will be implemented following the Bat Mitigation Guidelines (Marnell *et al*. 2022). This would be the ideal option but may not be feasible at the site.

Alternatively, bat boxes could be installed on the site offering artificial roosting accommodation. This would also mitigate for the loss of potential roosts on the site. If this option is taken it is recommended that 6 no. Schwegler 3FF bat boxes be installed. The Schwegler 3FF is a large flat, crevice-type box, suited for many species of bat, especially pipistrelles. This design has a large crevice opening, with enough internal space to allow clustering by groups of pipistrelles, meeting the guidelines for this species - "*tree crevice-type box, with 25-35mm crevices*" and "*providing a void in which bats can cluster*" (Marnell *et al*., 2022). This bat box is also open at the bottom which allows droppings to fall out, meaning cleaning and maintaining the box is not required and does not have to be in a very accessible location. The bat boxes should also be situated in areas where there is no artificial lighting which would deter

bats from using the boxes (Bat Conservation Ireland, 2014; Reason and Wray, 2023). An ecologist will need to advise on the location and orientation of these bat boxes based on the relevant guidelines.

6.5 Landscaping

The site should be planted supplementally with native species if possible. Any planting undertaken on the site should endeavour to utilise native species wherever possible. Plants chosen for landscaping should also follow the All-Ireland Pollinator Plan, which would provide suitable foraging opportunities for bat species in the area, as well as promote biodiversity (National Biodiversity Data Centre, 2021).

5.4 Lighting

The proposed development will likely result in addition light spill on and around the proposed development site. This will need to assessed in relation to bat foraging and commuting. Light spill should be minimised insofar as possible in the interest of local bat species and nocturnal fauna. LED lighting does have a greater impact on bats when compared with other lighting such as low-pressure sodium. If LEDs must be used, colours other than white may be used to lessen potential light spill impacts. Warmer colour wavelengths between 2700 and 3000 Kelvin seem to have less impacts on wildlife (Marnell *et al*., 2022; Bat Conservation Trust & Institute of Lighting Professionals 2018). Consideration should be given to restrictions during dark hours, such as reducing light levels, or turning off lights, during late hours of the night. Motion sensor lighting could also be considered.

Bat Conservation Trust & Institute of Lighting Professionals (2018) guidance may also be followed, as well as Bat Conservation Ireland's *Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers* (2010).

7. CONCLUSIONS

The proposed development will result in the loss of a minor Common Pipistrelle roost. However, these impacts can be fully mitigated with the measures proposed in this report.

Overall, it is concluded that the proposed development will not have a significant impact on bats providing the mitigation measures outlined in the current report are adhered to.

PLATES

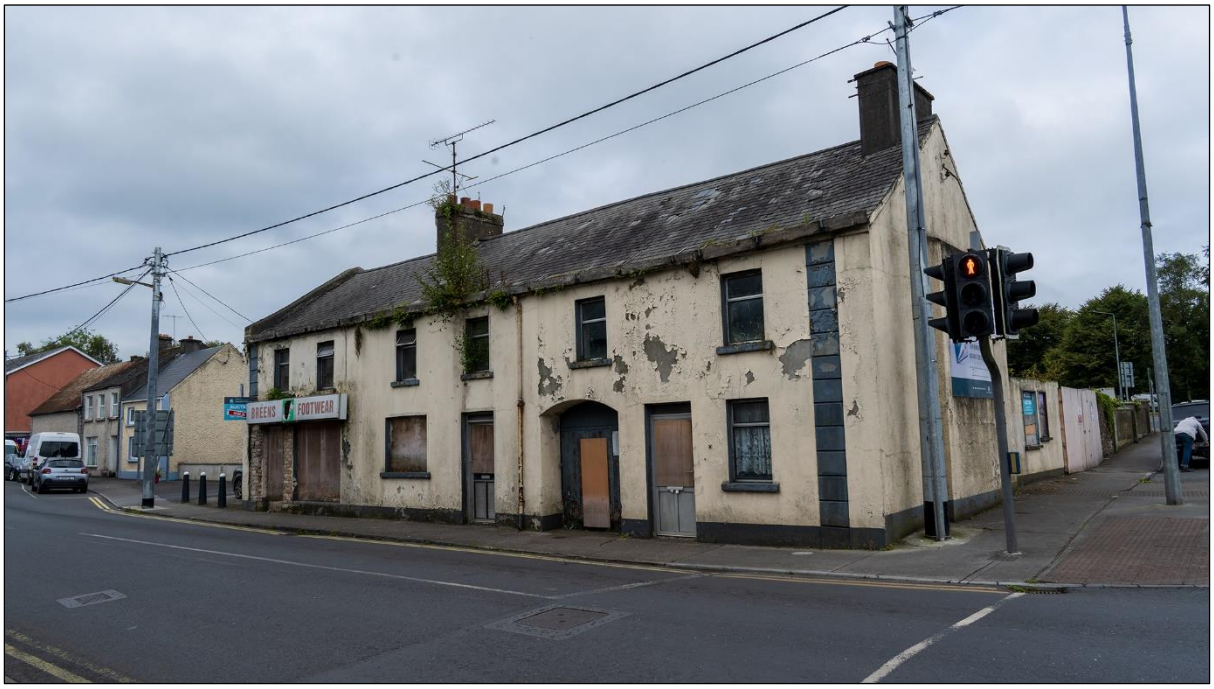

Plate 1 The subject site at Grove Street, Roscrea, Co. Tipperary (street view).

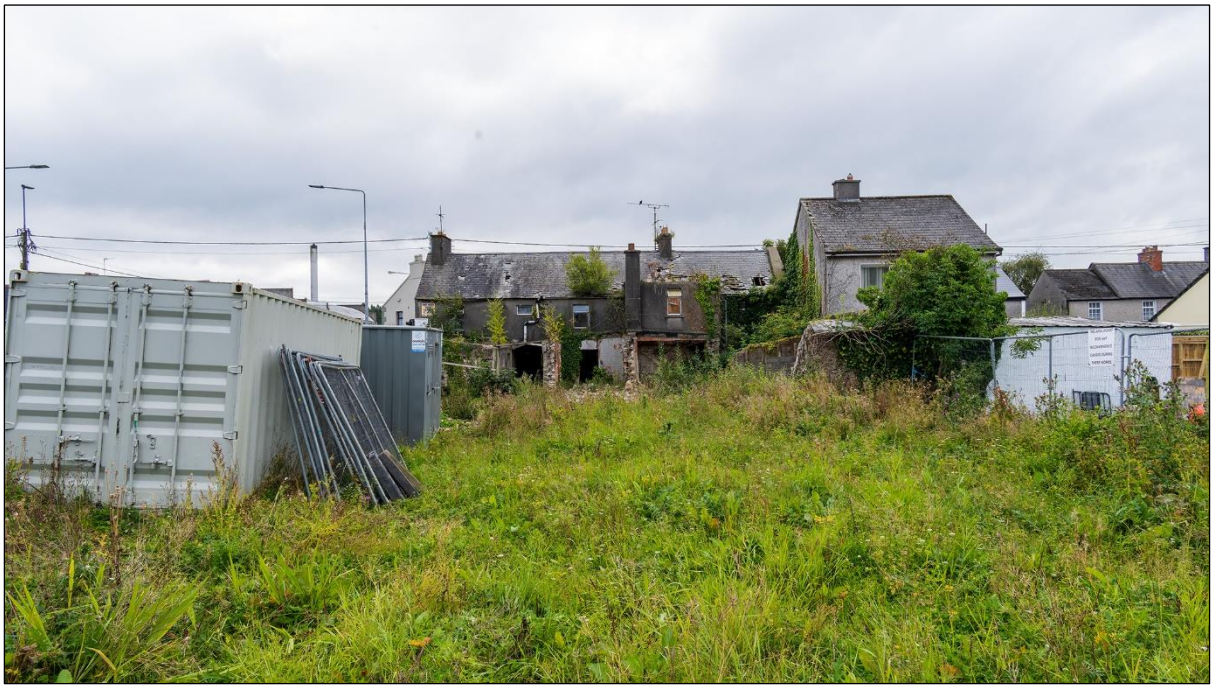

Plate 2 The subject site at Grove Street, Roscrea, Co. Tipperary (rear view).

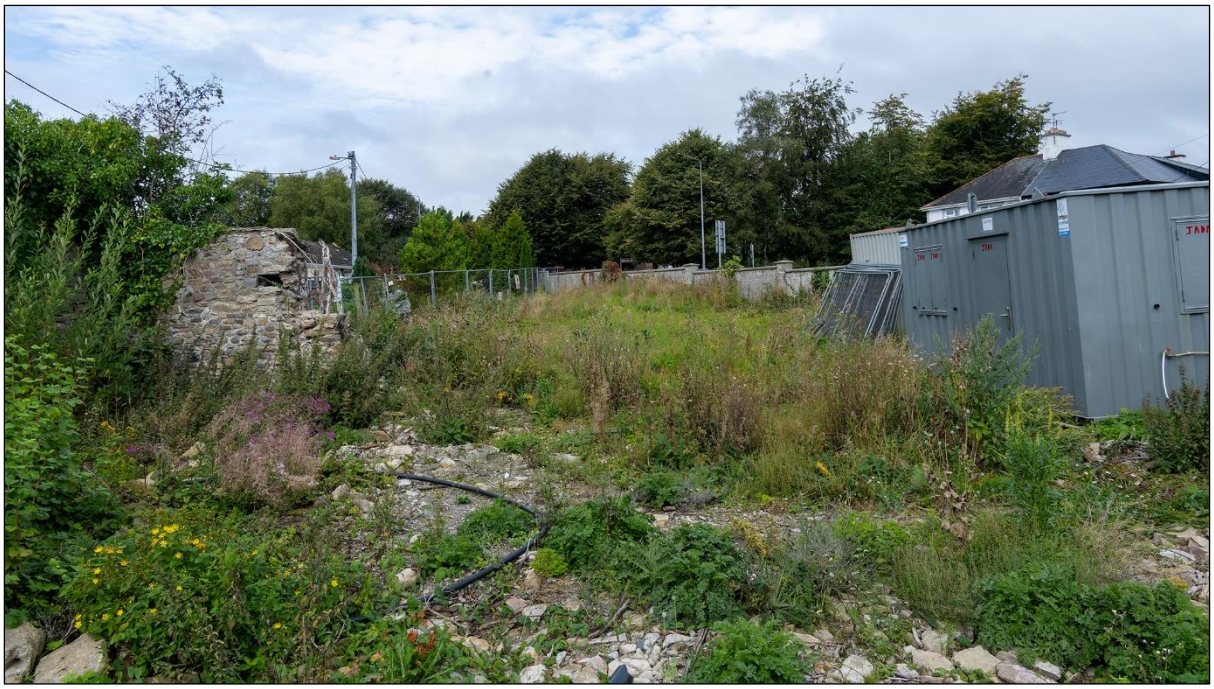

Plate 3 The subject site at Grove Street, Roscrea, Co. Tipperary (alternative rear view).

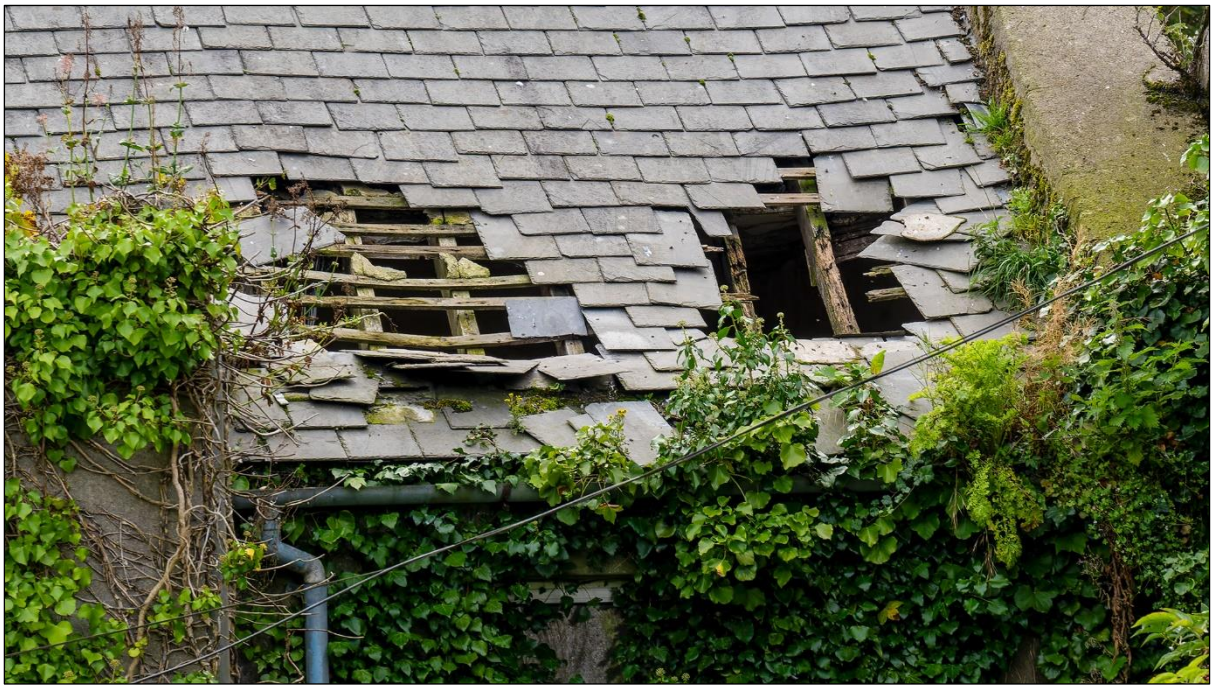

Plate 4 The subject building showing poor state of repair. The building was too dangerous to enter.

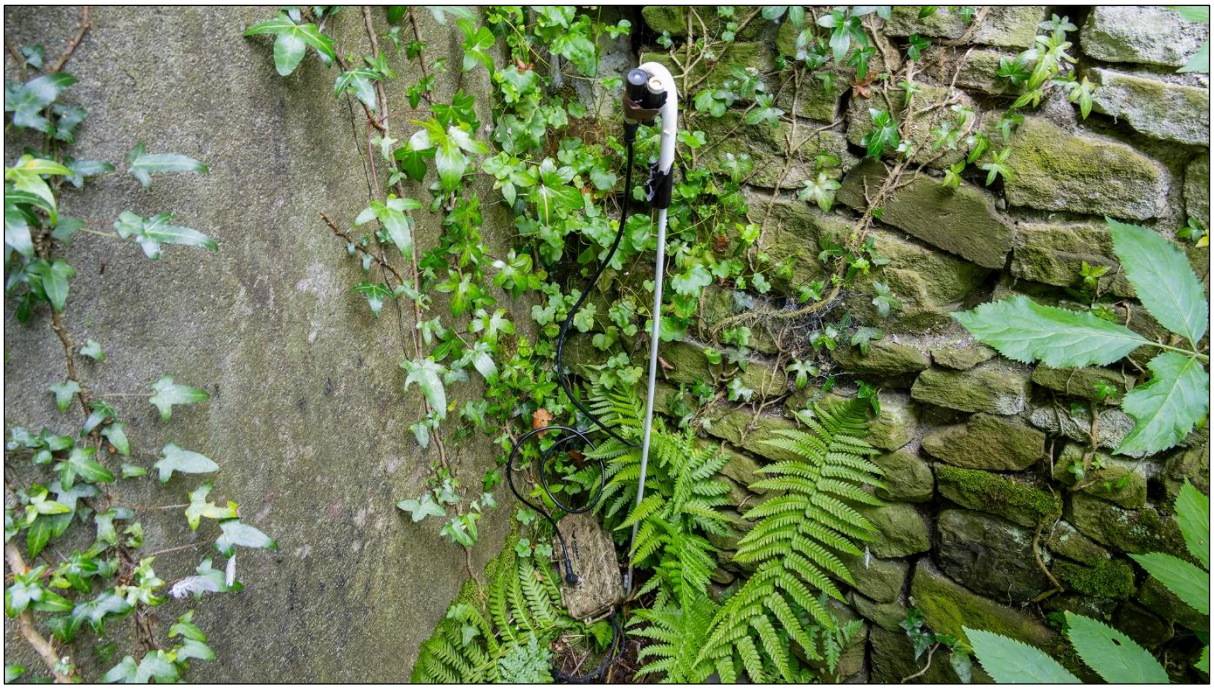

Plate 5 Anabat A setup at the proposed works site.

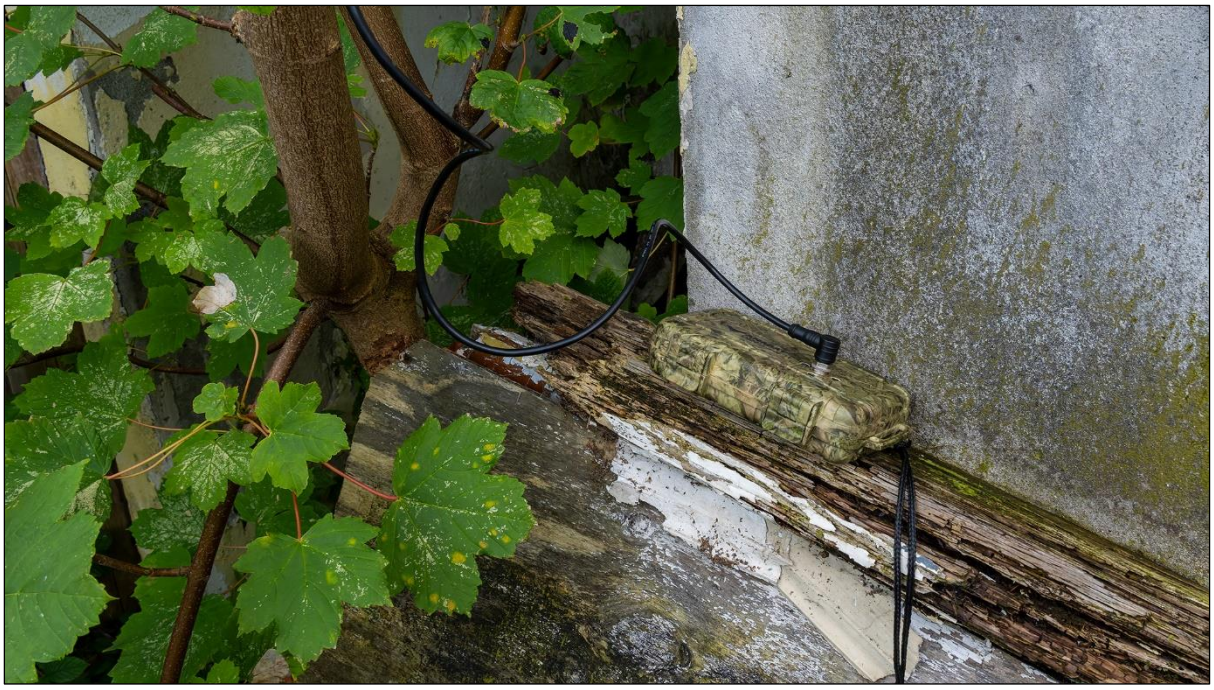

Plate 5 Anabat B setup at the proposed works site.

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