SCOTT
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Bat Mitigation Strategy

To Support Bat Derogation Application

For Proposed Demolition of Buildings

At the Clonee Data Centre

prepared for ORS

on behalf of Runways Information Services Limited

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1 Introduction

Scott Cawley Ltd., have been engaged to prepare a Bat Mitigation Strategy to support a bat derogation application for the proposed demolition of a number of structures at three vacant dwellings (herein referred to as the 'proposed development') on behalf of Runways Information Services Limited. This report provides details of presence/absence emergence surveys carried out by Scott Cawley Ltd., to assess structures with known bat roosts and/or potential features to support roosts based on a Preliminary Roost Assessment (PRA) of the proposed development in the summer of 2023[1]. The report also details implications of the proposed demolition on bats and their roosts and outline a mitigation strategy for bats. The information within this report is intended to support an application for a derogation licence for bats and their roosts, under the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended).

1.1 Description of the Proposed Development Site

The proposed development is located within the townlands of Portan and Gunnocks, *c.* 1.7km northeast of Clonee Village, Co. Meath and is surrounded by the Meta Clonee Data Centre Campus to the south and west, and agricultural fields to the north and east (see Figure 1). The three dwellings within the proposed development site comprise an area of 28,500m^2 and include:

- 4 Portan, Clonee, Co. Meath (D15 XR71) (Grid Reference:O 03789; 42316);
- Site formerly known as Merrycourt, Gunnocks, Clonee, Co. Meath (No Eircode) (Grid Reference:O 03991; 42437), and;
- Áras Mhuire, Gunnocks, Clonee, Co. Meath (D15 K853) (Grid Reference:O 04236; 42516).

All three locations are situated along the Portan Road (L5028) to the north of the M3 Motorway.

The proposed development site is surrounded by agricultural lands to the north and east, with the exception of the Mayne Estate *c.* 130 m north-east of Áras Mhuire. Agricultural fields also separate the three former dwellings within the proposed development. Three residential properties are situated directly south of 4 Portan. Otherwise, lands to the south and west are predominantly industrial in nature.

A tributary of the River Tolka (EPA Code:Tolka_030[2]) is located directly adjacent to the eastern boundary of 4 Portan and *c.* 50m from Merrycourt (see Figure 1).

The locations of the buildings within the proposed development site are illustrated in Figure 1.

[1] AECOM (2024). Demolition of Houses Application. Ecological Constraints Note.
[2] EPA Maps: EPA Maps

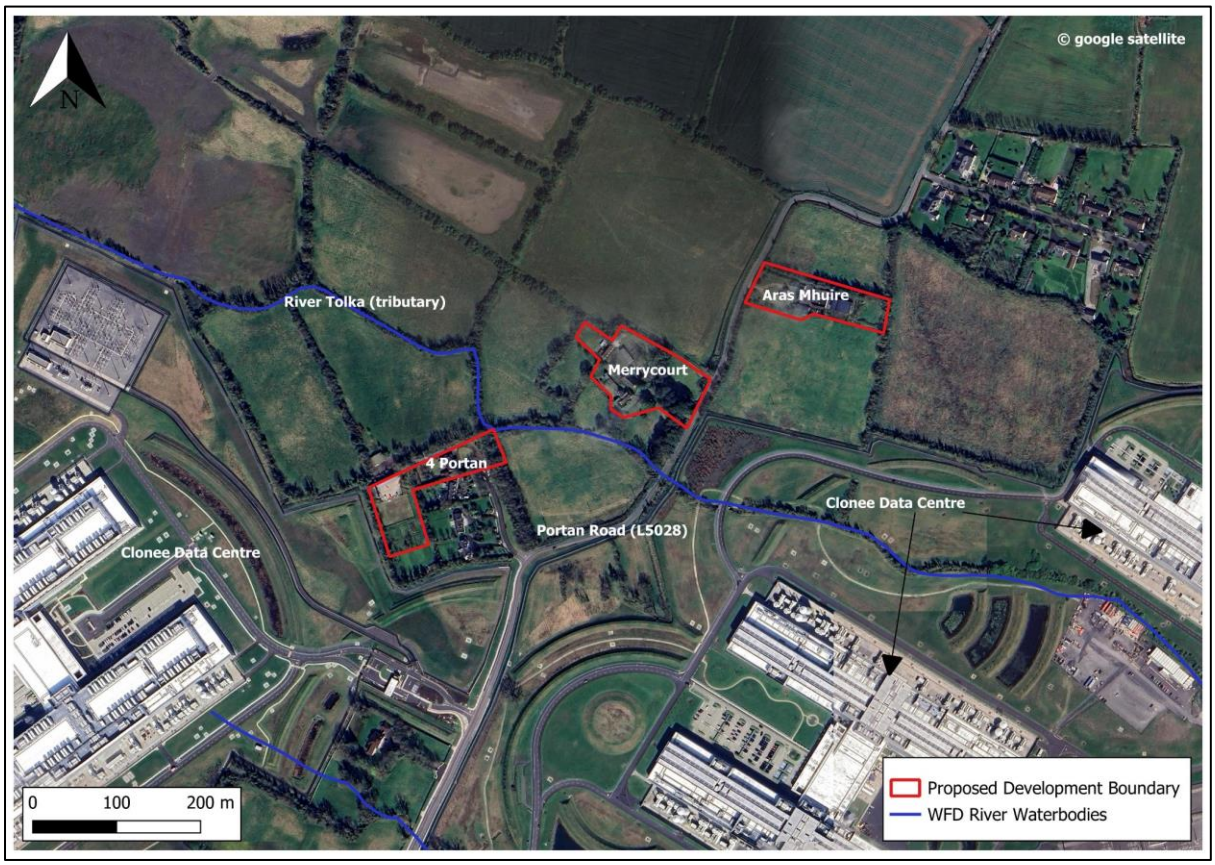

Figure 1: Aerial Image showing the location of the proposed development and surrounding lands.

1.2 Overview of Proposed Works

The proposed works consist of the demolition of disused residential properties and associated former agricultural outbuildings within the three former dwellings under the ownership of the applicant[3]. The total area proposed to be demolished is *c.* 2,600m^2.

The proposed works to the site formerly known as Merrycourt and Áras Mhuire (both Gunnocks, Clonee, Co. Meath) will consist of demolition of the disused residential dwelling and associated agricultural outbuildings (including the removal of internal boundary treatments, all services/utilities, and septic tanks where necessary), with lands returned to their natural state, including a mix of grass and wildflower planting. The proposals also include new 1.5m high wooden gates at both existing vehicular entrances to the site formerly known as Merrycourt and a new 1.5m high wooden gate and 1.2m high wooden post and rail fence at the existing entrance and frontage to Áras Mhuire, accessing onto the L5028 Kilbride Road. The total area proposed to be demolished in Merrycourt is *c.* 1,200m^2 and *c.* 1,100m^2 in Aras Mhuire.

The proposed works to 4 Portan, Clonee, Co. Meath will consist of demolition of the disused residential dwelling and associate detached garage building (including all services/utilities and septic tanks associated with the former residential dwelling where necessary). The proposed development will also consist of retention and change of use of the remaining three outbuildings to ancillary storage facilities for grounds maintenance materials and apparatus associated with the applicants adjacent Data Centre Campus. The land on which demolition will take place will be returned to its natural state, including a mix of grass and

[3] AECOM (2024). Demolition of Houses Application. Planning Stage Construction Environmental Management Plan. Runways Information Services Limited.

wildflower planting. The existing entrance will be retained for inspection and maintenance. The total area proposed to be demolished at Portan is *c.* 300m^2.

There a number of elements of the proposed demolition works which will need to be considered to facilitate the acting Ecological Clerk of Works (ECoW) on site including:

- The removal of asbestos from at least two buildings with known bat roosts (i.e. S10) and/or of moderate suitability for bat roosts. As such, the acting ECoW will have successfully completed Asbestos Awareness Training, certified by the Construction Federation of Ireland (CIF) prior to the works proceeding;
- Pre-demolition works check for non-native invasive species, listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011, (as amended) and the removal of same by an invasive species specialist to be sub-contracted by the main contractor under the supervision of the acting ECoW. The removal of non-native invasive species (i.e. cherry laurel *Prunus laurocerasus*, butterfly bush *Buddleja davidii* and *Cotoneaster horizontalis*) will be supervised by a suitably qualified Ecologist (SQE) and documented in a Compliance Note, and;
- As all breeding birds are protected under the Wildlife Acts (as amended), a presence/absence survey for nesting birds would be required should any vegetation removal take place inside the breeding bird season (March 1st – August 31st). However, it is envisaged all works will be completed prior to the breeding bird season commencing on 1st March 2025.

2 Legal Protection and Conservation Status of Bats in Ireland

It is an offence under Section 23 of the Wildlife (Amendment) Act 2000 and under the First Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) to kill a bat, to interfere with, damage or destroy the breeding or resting place of a bat species, or to deliberately disturb bats, particularly during their periods of breeding, rearing, hibernation and migration. Under the Regulations it is not necessary for damage or destruction of bats' breeding sites or resting places to be deliberate for an offence to occur. Given that unintentional damage or destruction of bats' breeding sites or resting places gives rise to an offence under the legislation, there is an onus of due diligence on property owners and anyone proposing to carry out works, to avoid any such damage or destruction.

As a signatory to the EUROBATS Agreement (Agreement on the Conservation of Populations of European Bats, 1994), Ireland is required to protect their habitats and important feeding areas from damage or disturbance. All Irish bat species are listed in Appendix II of the Bern Convention (1979), as species requiring protection.

There are nine species of bat known to breed in Ireland, while two other species have been recorded on a single occasion. All of Ireland's nine resident bat species are listed as "least concern" in the Ireland Red List No. 12: Terrestrial Mammals[4].

2.1 Need for The Derogation Licence

The derogation is being sought on the basis that a number of structures in the proposed development site contain small bat roosts, and the proposed works will result in the loss of the roost sites, and have the potential to result in the mortality and/or disturbance of bats or their roosts, which would be in contravention of the Regulation 54 of the European Communities (Birds and Habitats) Regulations 2011 (S.I. 477 of 2011) for a derogation licence from complying with the requirements of the provisions of Regulations 51, 52 and 53 of the same Regulations if undertaken in the absence of a derogation licence.

[4] Marnell, F., Looney, D. & Lawton, C. (2019). *Ireland Red List No. 12: Terrestrial Mammals*. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

2.1.1 Test 1 – Reason for seeking derogation

The derogation is being sought on the basis that the proposed development site contains bat roosts, and the proposed works will likely result in the loss of the roost sites, and have the potential to result in the mortality and/or disturbance of bats or their roosts, which would be in contravention of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) if undertaken in the absence of a derogation licence.

A derogation is being sought under Regulation 54(2) (c):

"The dwellings and their curtilages have fallen into a state of disrepair and pose a health and safety risk."

As the structures have been derelict for a number of years, the condition of some of the former dwellings and farm buildings has deteriorated. Owing to neglect and continued decline of these structures, they would likely become further dilapidated and unsuitable for bat roosts due to exposure and deterioration of roost sites.

2.1.2 Test 2 – There is no Satisfactory Alternative

As the structures are in a state of decline and have been derelict for a number of years, the roost features identified in the PRA in 2023 and 2024 are likely to further deteriorate and become unsuitable as roost sites for bats, due to exposure to weather and instability of materials within the structures. Therefore, owing to the increasingly dilapidated condition of the structures, there is a health and safety risk for staff and other personnel within the proposed development site should the structures be retained.

As such, it is considered appropriate to proceed with the proposed demolition works with the provision of alternative roosts sites in the form of 20 tree mounted bat boxes and three double chambered rocket-box bat houses (*Habitat Double Chambered Rocket Box | NHBS Practical Conservation Equipment*) as supplementary roost sites within the site (as descried in Section 2.1.3) prior to the works commencing.

2.1.3 Test 3 – Favourable Conservation status

The application relates to specific impacts on common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* and an unidentified pipistrelle species and/or their roosts arising from the proposed demolition works on the structures within the dwellings Merrycourt, Aras Mhuire and two structures within 4 Portan in Gunnocks and Portan, Clonee, Co. Meath. The strategy outlined in this report includes measures to avoid and minimise disturbance to bats, and the provision of alternative roosting sites for the duration of demolition and post-demolition and the provision of alternative roosts sites in the form of 20 bat boxes (10 Schwegler 1FF woodcrete boxes and 10 Schwegler 2F woodcrete boxes) to be erected on mature trees which are be retained within the proposed development site. In light of the size of the roost identified in the lands, and the current status of all species identified roosting on site as 'Least Concern', it can be concluded that following the implementation of measures outlined in Section 7 of this report, the proposed works will not be detrimental to the maintenance of the soprano pipistrelle bat, and pipistrelle bat at a favourable conservation status in their natural range.

3 Methodology

3.1 Preliminary Roost Assessment 2023

During the Preliminary Roost Assessment (PRA) of buildings within the proposed development site undertaken on behalf of the client on 7th June 2023, structures were assessed for the presence of potential roost features (PRFs) including access points. Buildings were labelled as 'structures' during the PRA for ease

of reference and therefore, will be identified accordingly from herein. The PRA was undertaken following best practice guidance from Bat Conservation Trust[5] at the time of the site visit.

The following PRFs and signs of usage of the structures by bats were included in the PRA:

- Presence of entry points including gaps in the structures (e.g. gaps and crevices in roof materials, windows, walls, soffits and eaves);
- Bat droppings (black shiny elongated droppings 5-10mm long) on external surfaces including walls and windows;
- Oil staining from secretions from bat fur and urine beneath and at bat roost entrances (typically indicative of a large roost);
- Odour emanating from urine and secretions (typically indicative of a large roost), and;
- Bat corpses.

Structures were categorised as 'none', 'negligeable', 'low', 'moderate' or 'high' suitability to support bat roosts (based on updated guidelines from the Bat Conservation Trust[6]) – see Table 1.

Table 1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of PRFs in structures and presence of habitat features within the landscape, applied according to professional judgement. (Taken from Collins (2023)).

Suitability	Description Roosting habitats[7]	Commuting and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

[5] Collins, J. (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Suitability	Description Roosting habitats[7]	Commuting and foraging habitats
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parkland. Site is close to and connected to known roosts.

3.2 Categorisation of Structures

Following the PRA in 2023, the structures were categorised according to their suitability to support bat roosts, as per the categories listed in Table 1. A total of 20 structures were assessed which were labelled for ease of reference. Labels were denoted by the letter 'S' and numbered 1-20 (i.e. from 'S01' to 'S20'). One structure, 'S06' which is located in the former residence, Merrycourt, was assessed as of 'high' suitability to support bat roosts (see Figure 2) while the structures 'S07', 'S10', 'S13' and 'S14' which are also located in Merrycourt, were determined to be of 'moderate' suitability. A further two structures, 'S16' and 'S20' were deemed to be of 'low' suitability to host bat roosts (see Figure 2). All other structures (i.e. 'S15', 'S17', 'S18' and 'S19') and in the former Áras Mhuire residence were assessed as of negligeable suitability for roosting bats. All structures in 4 Portan (i.e. 'S01', 'S02', 'S03', 'S04' and 'S05') were categorised as of no suitability to support bat roosts. Structures of negligeable or no suitability for roosting bats will not be considered further in the Bat Mitigation Strategy.

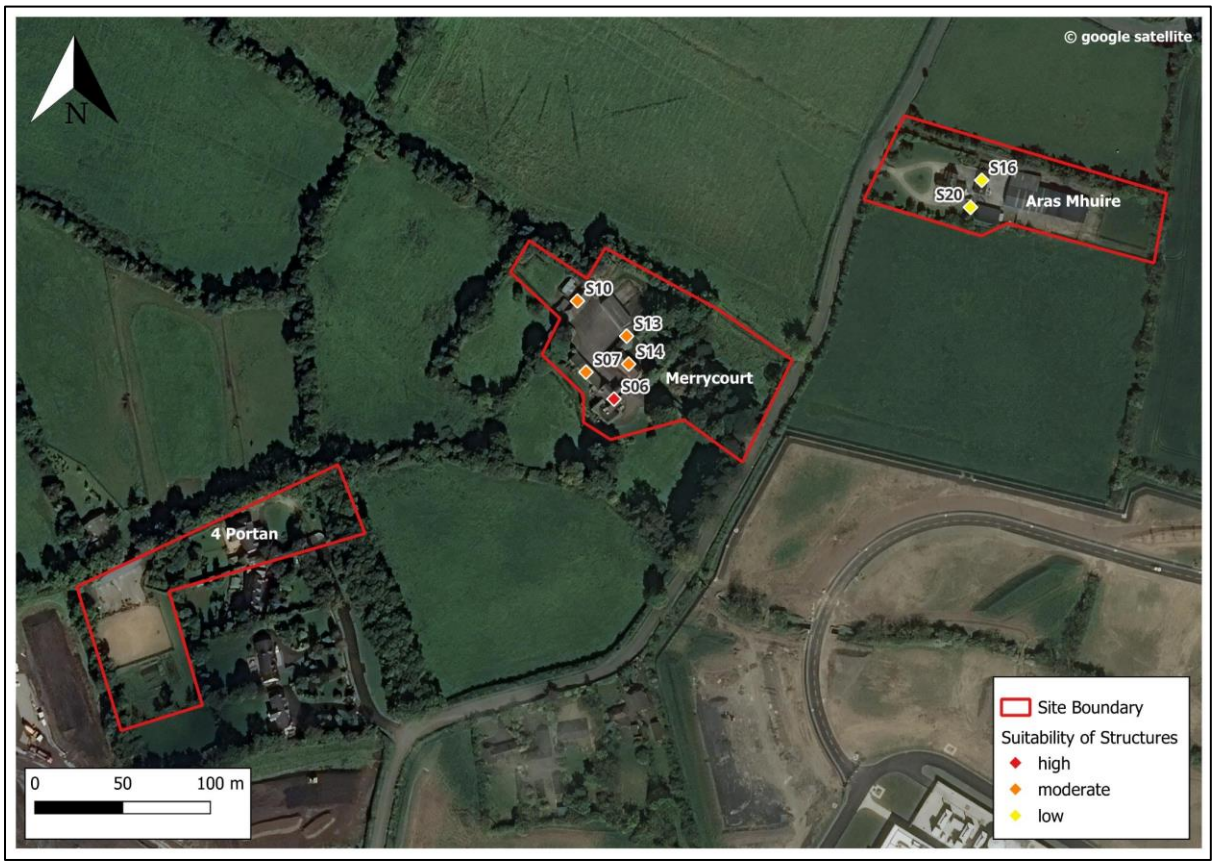

Figure 2: Location of structures within the proposed development and their suitability to support bat roosts.

3.3 Emergence Surveys 2023

Emergence surveys were undertaken by experienced AECOM ecologists on behalf of the client (see full Ecological Constraints Note report in Appendix II) on the high and moderate suitability (i.e. S07, S10, S13 and S14) structures within the former dwelling Merrycourt in 2023 from July to September (31st July, 15th August and 12th September). One emergence survey was conducted focusing on the low suitability structures S16 and S20 in Áras Mhuire on the night of 10th August 2023. A static detector was deployed August 15th 2023 within a treeline near to the entrance of the former dwelling, Merrycourt to provide supplementary data for general bat activity.

Emergence surveys commenced 15 minutes before sunset and concluded 1.5 - 2 hours thereafter. Bat detectors were used to record echolocation calls from bats and identify species present. Surveyors positioned themselves each with clear views of structures observing PRFs recorded during a Preliminary Roost Assessment of the structures to identify access points of any bats observed emerging or re-entering the structures. Access points for bats emerging or re-entering structures, direction of flight and height were marked with the number and species of bat also recorded depending on light conditions.

Night vision aids in the form of infra-red (IR) cameras were deployed with IR torches to aid detection of bats emerging from PRFs identified on the structures. IR cameras were deployed with a SM4 or M bat logger to aid identification of bats recorded on the camera.

Bat data was subsequently analysed through Kaleidoscope Pro 5.3.6 to identify bats and confirmed species of calls recorded in the field while IR camera capture was analysed using VLC media player to determine if bats were recorded emerging/re-entering structures. The video recordings were played back at double speed with a motion detection tool to detect any movement of bats and pinpoint the location of any roosts.

3.4 Emergence Surveys 2024

Scott Cawley Ltd., ecologists re-surveyed the structures, as per surveys conducted in 2023 with a suite of emergence surveys in the summer of 2024. Surveyors used direct observation to capture bats exiting the structures and handheld ultrasound detectors (Elekon BatLogger M/M2). An IR camera and torches were deployed to record activity at confirmed roost sites in 2023 and to provide further coverage at structures S16 and S20 in Áras Mhuire. Survey effort was based on the number of roosts identified in 2023 and the suitability of structures to support roosts following the PRA as per Table 1. Surveys were scheduled as follows:

- Merrycourt (S06+S07) - three emergence surveys with three surveyors covering both structures, aided with an IR camera on the west and north facing sides of S06 at the roost access points recorded in 2023 in both structures identified during the emergence surveys in 2023;
- Merrycourt (S10, S13, S14) – two emergence surveys with four surveyors covering all sides of the structures, aided with an IR camera at two roost access points in two stable entrances in S10, identified during the emergence surveys in 2023, and;
- Áras Mhuire (S16+S20) – one emergence survey with two surveyors covering all sides of both structures, aided with an IR camera which was set-up facing PRFs on the south and east facing sides of S16, identified during the PRA in 2023.

3.4.1 Positioning of Surveyors

Surveyors were positioned relative to the roost access points identified during the emergence surveys undertaken in 2023 for structures S06, S07 and S10. For structures with moderate and low suitability (i.e. S13, S14, S16 and S20), surveyors were positioned facing PRFs identified in the PRA in June 2023. Similarly, the viewshed of the infra-red camera was positioned facing roost access points (i.e. S06, S07 and S10) and PRFs (i.e. S13, S14, S16 and S20). The position of surveyors, the IR camera and surveyors viewshed during each of the emergence surveys as detailed above in Section 2.5, are illustrated in Figure 3.

Full details of emergence surveys conducted in 2024 are shown in Table 2.

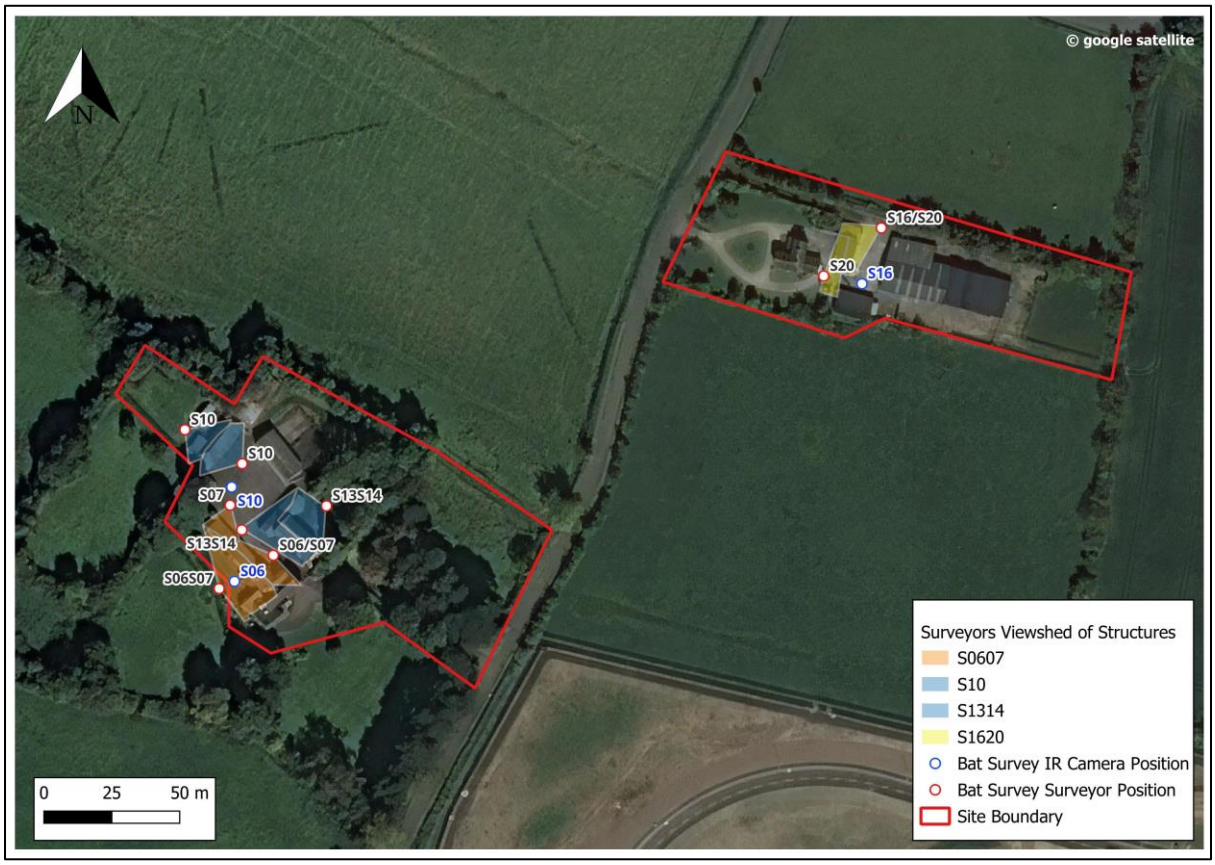

Figure 3: Illustrating the Viewshed, Position relative to Structures during the Scott Cawley Ltd., Emergence Surveys in 2024.

Table 2: Details of Scott Cawley Ltd. Emergence Surveys Completed in 2024.

Structures	Survey Date	Survey Times	Sunset	No. of Surveyors	Surveyor Names	Weather
S06 & S07	25/06/2024	21.30 – 23:43	21:57	3	Jamie Dempsey Simon O'Carroll Scott Bastow	Dry in a light easterly breeze. Partly cloudy and mild at 17°C
S06 & S07	23/07/2024	21:19 – 23:20	21:35	3	Jamie Dempsey Simon O'Carroll Scott Bastow	Dry in a gentle breeze. Partly cloudy and mild at 16°C
S06 & S07	27/08/2024	20:10 – 22:05	20:24	3	Jamie Dempsey Simon O'Carroll Ita Sherlock	Dry in a light wind. Clear with temperatures of 17 - 19°C
S10, S13 & S14	09/07/2024	21:49 – 23:01	21:50	4	Simon O'Carroll Alison Bourke Gregor Wood Bea Jackson	Dry in a light southeasterly breeze. Mostly cloudy and mild at 16°C
S10, S13 & S14	14/08/2024	20:40 – 22:30	20:53	4	Carla Deane Scott Bastow Ben Ryan Ita Sherlock	Dry in a light southwesterly breeze. Overcast and warm with temperatures 16 - 22°C
S16 & S20	30/07/2024	21:07 – 23:07	21:22	2	Jamie Dempsey Bea Jackson	Dry in calm conditions. Scattered cloud and warm at 19°C

3.5 Preliminary Roost Assessment 2024

A follow-up PRA was conducted by experienced and suitably qualified ecologists (SQE) Cathal O'Brien BSc. MSc. ACIEEM[1] and Simon O'Carroll BA. MSc. of Scott Cawley Ltd., on August 29th 2024 under derogation to handle bats (Licence No.: DER/BAT 2024-53). The PRA included internal and external inspections of all 20 structures (i.e. S1 – S20) within the redline boundary with the aid of a rigid (RIGID CA-350) and workzone endoscope. As per the initial PRA conducted in June 2023, PRFs and signs of roosting bats (see Section 2.2) including oil staining, droppings and carcasses of dead bats were searched for. Initially, a pair of binoculars were used to check for any signs of bat roosts (i.e. droppings and/or staining on surfaces) on external surfaces of structures from ground level. A ladder and head torches aided access to areas within structures that could not be reached from ground level such as attic spaces, dust masks were worn by both surveyors inside the structures. An endoscope which is an electronic device with a long narrow tube with a camera which enables viewing access inside crevices. The endoscope was inserted into suitable roost features

slowly to prevent injury to any bats. The SQE checked the area within the cavities, whether it is dry with signs of usage by bats[8].

Safety boots, gloves and hard hats were also worn by the surveyors on entry to each of the former dwellings. A safety check of the abandoned structures was conducted initially before it could be deemed safe to access the internal areas including upper floors and attic spaces in some of the structures with signs of dilapidation and dis-repair.

4 Results

The results of two full seasons of bat emergence surveys in 2023 and 2024 on structures identified as of high, moderate and low suitability to support bat roosts are outlined in the proceeding sections and will form the basis for mitigation measures for the proposed development within this Bat Mitigation Strategy. The results from the initial and follow-up PRAs also support mitigation measures for the proposed demolition works.

No records of species of bats were returned from the NBDC[9] within approximately 2km of the proposed development site.

4.1 Summary of Emergence Surveys in 2023

The results of emergence surveys conducted by experienced AECOM surveyors on behalf of the client on the structures as outlined in Section 2.4 are summarised in Table 3 below and outlined in further detail in Appendix II.

Table 3: Bat Roost Identified in 2023 Emergence Surveys

Structure	Survey Date(s)	Suitability	Confirmed Roost	Species	No. of bats Emerged	Roost Description
S06	31/07/2023 15/08/2023 12/09/2023	High	Confirmed day roost.	Soprano pipistrelle Common pipistrelle	3 1	Emerged from roof of dormer window, and chimney. Emergence from chimney. See AECOM (2024)[1]
S07	31/07/2023 15/08/2023 12/09/2023	Moderate (potential night feeding perch)	Confirmed day roost and potential night roost.	Common pipistrelle Soprano pipistrelle	4	Emergence from stables through open stable doors. See AECOM (2024)[1]
S10	15/08/2023 12/09/2023	Moderate - Potential night roost / or feeding perch	Confirmed day roost.	Common pipistrelle	4	Emergence through first two open stable doors on the left-hand side of the structure. See AECOM (2024)[1]
S13	31/07/2023 12/09/2023	Moderate - Potential night	None	N/A	0	No roosts identified.

[8] SNCO (2015). Method Statement for the Appropriate Use of Endoscopes by Arborists.
[9] National Biodiversity Data Centre: Maps - Biodiversity Maps (biodiversityireland.ie) (Accessed on 21st August 2024).

Structure	Survey Date(s)	Suitability	Confirmed Roost	Species	No. of bats Emerged	Roost Description
		roost / or feeding perch				
S14	31/07/2023 15/08/2023	Moderate - Potential night roost / or feeding perch	None	N/A	0	No roosts identified.
S16	10/08/2023	Low - Potential night roost / or feeding perch	None	N/A	0	No roosts identified.
S20	10/08/2023	Low - Potential night roost / or feeding perch	None	N/A	0	No roosts identified.

Emergence Survey 2024

The results from emergence surveys conducted in 2024 on the structures as outlined in Section 2.5 are presented in Table 4 and discussed in more detail below.

Table 4: Bat Roost Identified in 2024 Scott Cawley Ltd. Emergence Surveys.

Structure	Survey Date(s)	Suitability	Identified Roosts	Species	No. of bats Emerged	Roost Description
S06	25/06/2024 23/07/2024 27/08/2024	High	No roosts observed or captured by IR camera	N/A	N/A	N/A

Structure	Survey Date(s)	Suitability	Identified Roosts	Species	No. of bats Emerged	Roost Description
S07	25/06/2024 23/07/2024 27/08/2024	Moderate (potential night feeding perch)	Confirmed day roost and potential night roost.	Common pipistrelle Soprano pipistrelle	2 1	One common pipistrelle observed emerging and re-entering stable on right-hand side of structure from the courtyard o 25th June. Two common pipistrelle observed entering shed on right hand side on 23rd July as well as an unidentified bat. A soprano pipistrelle bat was observed entering and exiting the second stable from the left of S06 on two occasions during the survey on July 23rd See Appendix I for photographs of access points.
S10	09/07/2024 14/08/2024	Moderate (potential night feeding perch)	Confirmed day roost and potential night roost.	Soprano pipistrelle Common pipistrelle	1 1	At least one individual observed emerging and immediately re-entering open stable door on right side of structure from the courtyard on 9th July. One individual observed emerging from the apex of the roof on northwest side (rear) of structure on 9th July. One individual observed re-entering structure to the rear (the exact access point was obscured by vegetation) and a single bat re-entered under corrugated iron roof, adjoining the western side of the former stables, also on 9th July.

Structure	Survey Date(s)	Suitability	Identified Roosts	Species	No. of bats Emerged	Roost Description
						A bat was captured entering and re-emerging from the left hand stable on the IR camera on 14th August. See Appendix I for photographs of access points.
S13	09/07/2024 14/08/2024	Moderate (potential night feeding perch)	None	N/A	0	N/A
S14	09/07/2024 14/08/2024	Moderate - Potential night roost / or feeding perch	None	N/A	0	N/A
S16	30/07/2024	Low - Potential night roost / or feeding perch	None	N/A	0	N/A

The results of the emergence surveys conducted in 2024 and presented in Table 4 confirmed the following:

- **S06**: This structure comprises two separate sections, the first section is a single storey (***Plate 1*** Appendix I) which was considered as of moderate suitability for roosting bats based on the internal and external follow-up PRA in August 2024. The other adjoining section consists of a two-storey former dwelling (***Plate 2***, Appendix I) which on the external inspections supports PRFs of high suitability (see Section 3.4). No emergence activity was noted during the 3 no. emergence surveys conducted in 2024 or from analysis of IR camera footage. However, as roosts of both common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* were observed in emergence surveys conducted in 2023, it is likely that the structure is periodically used as a day roosts by either or both species.
- **S07**: A common pipistrelle bat was observed entering and exiting the right hand side stable from the courtyard. A common pipistrelle bat was then observed entering the same stable during the survey on June 25th, 2024 (see ***Plate 3***in Appendix I). During the same survey, a soprano pipistrelle bat was observed emerging from the same stable. Two separate observations of common pipistrelle were noted during the survey on 23rd July, the first bat entered the right-hand stable from the courtyard while a soprano pipistrelle bat was also observed emerging from the adjacent stable (see ***Plate 4***in Appendix I). One soprano pipistrelle was observed entering the second stable from the left (right of S06 from the courtyard – ***Plate 5***, Appendix I) and re-emerged shortly after

(*c.* 10 minutes after entering) from the same access point during the survey on 23rd July 2024. An unidentified bat was observed emerging from the same stable during this survey. A soprano pipistrelle bat was observed entering and exiting the second stable from the left of S06 on two occasions during the survey on July 23rd. No emergence activity was noted during the emergence survey on 27th August 2024.

- **S10**: During the survey on 9th July 2024, a single soprano pipistrelle bat was observed entering the right-hand stable (from the courtyard) while less than 10 minutes later a soprano pipistrelle entered the same stable and emerged within two minutes of the first observation (see ***Plate 6***, Appendix I) It could not be confirmed if both observations were of the same individual or two separate individuals.
- During the same survey, another surveyor was positioned to on the western side of S10, to it's rear. An unidentified pipistrelle bat was observed emerging from the top corner of the roof (see ***Plate 7***, Appendix I), while a common pipistrelle was observed entering the rear of the structure beneath the eave of the roof (see ***Plate 8***, Appendix I). A bat was captured entering and re-emerging the far left stable entrance (i.e. from the courtyard) on the IR camera on August 14th, 2024.
- A further pipistrelle bat was then observed re-entering an access point beneath the corrugated iron roof of a small open shed attached to the rear of the main structure (see ***Plate 8***, Appendix I). No bats were observed emerging or entering the structure during the emergence survey on 14th August 2024.
- **S13:** No bats were observed by surveyors from the structure during the emergence surveys on July 9th and August 14th, 2024.
- **S14**: No bats were observed by surveyors from the structure during the emergence surveys on July 9th and August 14th, 2024.
- **S16**: No evidence of bats emerging from and/or re-entering the structure was observed both by surveyors and from the infra-red camera footage which recorded activity on the east and south facing sides of the former farm building on 30th July 2024.
- **S20:** No evidence was observed of bats using the structure as a roost site from surveyors during the emergence survey on 30th July 2024.

4.1.1 Analysis of Emergence Survey Results from 2023 and 2024

No bats were recorded emerging and/or re-entering structure S06 during the three emergence surveys conducted in the activity season in 2024 (see Table 4). This contrasts with the results from emergence surveys conducted in 2023 in which two soprano pipistrelle bats and one common pipistrelle were observed emerging from the structure in July and two unidentified bats in September 2023. As the condition, light conditions and habitat surrounding this structure have not changed between the emergence surveys in 2023 and 2024, it is likely the structure is still used periodically as a roost site containing small numbers of bats.

The results from emergence surveys carried out in 2023 were very similar to those of the corresponding emergence surveys in 2024 regarding the structure S07. Three stables were noted to be used as roosts by small numbers of common and soprano pipistrelle bats during the 2023 (see Table 4 and Section 3.2) while three of these stables were used by similar numbers of common and soprano pipistrelle bats during the 2024 emergence surveys (see Table 4 and Section 3.2). Overall, at least two common pipistrelle and one soprano pipistrelle bats were confirmed emerging from S07 during both the surveys in 2023 and 2024. The roosts are likely to be in use during the summer months and unlikely to be suitable as hibernation roosts due to exposure from open or partly open stable doors and lack of insulated materials in the structure, which largely comprise corrugated iron roofing and sides as well as concrete walls.

During the emergence surveys in 2023, four common pipistrelle bats were observed emerging from the two left had stables from the courtyard in S10 in both the August and September surveys. During the July

survey in 2024, a single common pipistrelle bat emerged from the roof above one of the same stables (the far left stable from the courtyard) and an unidentified pipistrelle entered the rear of this structure. During the same survey a soprano pipistrelle bat entered the stable farthest right from the courtyard and a further observation of a soprano pipistrelle was noted with this bat re-emerging. Although, the access points and number of bats confirmed roosting within the structure between 2023 and 2024 differ, small numbers of common and soprano pipistrelle bats are confirmed to be using this the structure as roost sites. The roosts are likely to be summer roost with hibernation roosts unlikely due to exposure through the open or partly open stable doors and lack of insulating properties in the materials in the structure.

4.2 Preliminary Roost Assessment 2023

The initial PRA carried out in 2023 identified 'lifted and cracked slate tiles on west side of structure facing west about 4 meters high' of structure S06. Access points were identified through open doors of former stables in S07 and similarly, there were multiple access points identified through open doors in S10 which were also formerly used as stables. Access points in S13 were also open stable doors to PRFs in the interior including the attic space while open windows provide access to a former two storey stable S14 which provide access to the attic space. Gaps were noted at the top southwest facing corner of S16 leading into second floor while gaps between the door and roof of a boiler and pump house shed which is denoted S20 (in Figure 2) were recorded in the structure which was considered low suitability for roosting bats.

4.3 Preliminary Roost Assessment 2024

4.3.1 Preliminary Roost Assessment Structure S06

The follow-up PRA, which was undertaken on August 29th, 2024, from the initial survey carried out in June 2023. Despite some notable PRFs such as behind furniture, curtains and beneath toilet cisterns (***Plate 9*** and ***Plate 10***, Appendix I). Gaps in lead flashing on the east facing side of the roof and a soffit board were also noted in the external survey (***Plate 11***, Appendix I). The results of both the external and internal inspections found no evidence of usage of the eastern side of S06 of the single storey structure former house. However, a two-storey building adjoining this structure was inaccessible as the doors could not be unlocked by security. Therefore, surveyors were restricted to an external inspection of this structure. Roost access points were identified during the emergence surveys in 2023 in this two-storey structure along with multiple PRF features during the follow-up PRA external inspection by Scott Cawley Ltd. The results of the follow-up PRA affirm the results from the initial PRA from 2023 which considered the structure as of high suitability for roosting bats due to multiple roost features which are potential access points to the two-storey structure. Potential access points into the structure include gaps between slates, ridge tiles, in a roof window and beneath lead flashing, also associated with the roof (see ***Plate 12***, ***Plate 13*** and ***Plate 14*** in Appendix I). There were also crevices between wooden window frames on this two-storey structures with potential access to the upstairs rooms for bats (see ***Plate 15***, Appendix I). However, the adjoining single-storey structure is assessed as of moderate suitability for roosting bats which hosts fewer access points and PRFs as noted in the external and internal inspections.

4.3.2 Preliminary Roost Assessment Structure S07

Structure S07 consisted of six former stables. The internal inspections of this structure commenced from the first two stables on the left of the building (see ***Plate 16***, Appendix I), adjoining S06 and moved towards the courtyard and structure S10. The internal inspection of the stables (see ***Plate 17***, Appendix I) in S07 yielded bat droppings (see Error! Reference source not found.**,** Appendix I) on the side walls in the third stable from structure S06 with PRFs in a cavity in the wooden walls (see ***Plate 18***, Appendix I), where the droppings were found. Further, evidence of oil staining was noted beneath an entrance point to a PRF in a cavity in one of the wooden partition walls on a light bulb (see ***Plate 19*** and ***Plate 20***, Appendix I), close to where droppings were found. The PRFs were inspected with an endoscope, aided by a ladder where they could not be reached from ground level. No roosting bats were observed. There were not enough droppings in this stable for a viable sample to be extracted for DNA analysis to determine the species droppings were deposited by.

However, evidence of bat droppings were noted, and a sample was taken for DNA analysis from a separate stable to the right hand side of this structure from the courtyard (see ***Plate 21***, Appendix I). The droppings were extracted and placed in an Eppendorf tube from beneath a PRF which comprised a gap between the top of a cavity block wall and a wooden beam supporting a corrugated iron roof (see ***Plate 22***, Appendix I). The sample was sent to Swift Ecology for DNA analysis[10] to identify the species of bat using the shed as a roost. However, a check with the endoscope did not uncover roosting bats in this feature but it is likely used as a roost periodically. The most notable access points noted in the external inspection was directly through open stable entrances and/or above stable doors which allows direct unimpeded access to the stables for potentially roosting bats and could also act as feeding perches. The shed door on the right hand side of the structure was open (see ***Plate 23***, Appendix I) which also allows direct access into the structure among other PRFs which were noted during the internal and external PRA. This structure is considered of moderate suitability for roosting bats due to numerous PRFs within the structure which have potential to support small numbers of bats as summer roosts. The results of DNA analysis revealed that the sample of droppings collected in the right hand stable were from both common pipistrelle and soprano pipistrelle bats.

4.3.3 Preliminary Roost Assessment Structure S10

Structure S10 comprises five stables with cavity block walls and an asbestos roof. There is also a layer of felt beneath the roof. Similar to the stables in S07, there were large openings associated with the stable doors, particularly through wooden vents above each door (see ***Plate 24***, Appendix I). Surveyors inspected each of the stables internally from left to right. On entering the stables, surveyors noted a strong odour of bat urine, particularly in the first and second stables. Bat droppings were noted and collected for DNA analysis from the first stable (see ***Plate 25***, Appendix I) on a plastered wall and in a drinking trough. There were multiple gaps between a felt underlay and the asbestos roof which were the most notable PRFs noted on the internal inspection (see ***Plate 26***, Appendix I).

Bat droppings were also noted on a partition wall in the third stable (from left to right) but there were not enough droppings to collect a viable sample for DNA analysis. The felt and inside of the roof could not be reached with the endoscopic ladder. Gaps beneath the tin ridge tiles and asbestos roof were noted during the external inspection of this structure (see ***Plate 27***, Appendix I). A number of cavities were recorded between the fascia board and along the side of a window and a broken pain of glass also to the rear of the former stables (see ***Plate 28*** and ***Plate 29***, Appendix I). An open shelter with corrugated iron roof was inspected adjoining the rear of S10 but did not support any PRFs and was relatively exposed. This structure is considered as of moderate suitability due to the presence of multiple PRFs which have potential to support small numbers of bats as summer roosts.

4.3.4 Preliminary Roost Assessment Structure S13

Surveyors then inspected former stables and a shed in S13 (see ***Plate 30***, Appendix I) which was constructed with cavity blocks (rear and partition walls), a corrugated iron roof, front and side walls. There was also a ragged layer of felt beneath the roof which was in poor condition. There were relatively few PRFs noted within the internal areas of this structure aside from crevices where the roof join the top of the walls (***Plate 31***, Appendix I) and in holes in the layer of felt. Although, the felt was very loose with large holes and missing strips providing little in the way of shelter beneath the iron roof (***Plate 32***, Appendix I). The external inspection noted raised sheets of corrugated iron with potential access points and the upper half of the doors were open with considerable scope for access for bats. It was also noted that the stables were relatively exposed due the north facing aspect and materials it was constructed of lack insulating properties. No evidence of roosting bats were found such as droppings and/or staining. There was no odour

[10] Swift Ecology. DNA Analysis for species identification: https://www.swiftecology.co.uk/dna.php

to suggest usage by bats. Due to the exposure and relatively few PRFs noted, this structure is assessed as of low suitability for roosting bats.

4.3.5 Preliminary Roost Assessment Structure S14

The two-storey structure S14 (see ***Plate 33***, Appendix I) comprised eight stables on the ground floor, four facing south and four facing north. The upper floor was a loft which was inaccessible during the PRA inspections. Surveyors inspected the internal structure of each stable. The PRFs comprised gaps in the ceiling between floorboards and the top of the concrete walls which was consistent in all of the stables inspected (see ***Plate 34***, Appendix I). As with the tables in S07, S10 and S13, the doors were split with the top half open on some stables while the lower doors on some entrances were entirely missing (see ***Plate 35*** and Appendix I). A wall in one of the north facing stables had a large crack. There was also wooden windows on each structures some of which were open and others which showed signs of dis-repair and had multiple access points around the frames on both the southern and northern sides of the structure (see ***Plate 36***, and ***Plate 37*** Appendix I). Elsewhere on the external surfaces of the structure, there were gaps beneath the facia board facing west and beneath the ridge tiles on the asbestos roof (see ***Plate 38*** and ***Plate 39***, Appendix I). Windows in the loft were open with large access points for bats. A number of the asbestos sheets were raised which along with gaps in the ridge tiles provide access points to the loft space. This structure was considered of moderate suitability for roosting bats due to a high density of PRF features with access points from external surfaces and within the stables. The internal space in the loft potentially hosts roost features also.

4.3.6 Preliminary Roost Assessment of Remaining Structures in Merrycourt

Four other structures which are proposed to be demolished were inspected in Merrycourt. These included a former cabin and two farm sheds (one which was a cattle shed, a barn and an open storage shed). Three of these structures are constructed of corrugated iron and steel or wooden beams and columns. These structures were assessed as of negligeable suitability for roosting bats as there were no suitable roost features and are not considered further considered further.

However, the log cabin had gaps between the steel roof lining and top of the walls (see ***Plate 40*** and ***Plate 41***, Appendix I) with potential to support small numbers of bats. As such, this structure was considered as of low suitability for roosting bats.

4.3.7 Preliminary Roost Assessment of Structures in Áras Mhuire

All structures in Áras Mhuire were then inspected which included a former two storey house, two cattle sheds constructed of corrugated iron and cavity block walls, a former shed and a two storey multi-purpose building with sheds, a large garage and a loft. A boiler room and pump house was also present within the former dwelling.

The former house showed little sign of weathering with well sealed double glazed windows and modern PVC doors at the front and southern side of the structure. The were some minor gaps beneath copper flashing on the roof and behind the soffit boards on the eaves surrounding the house. There was no signs of gaps beneath the tiles on the roof. The internal structures of the house revealed no sign of ingress or cavities on the extremities such as on the inside of windows and doors. Any PRFs were inspected with a torch and endoscope such as behind radiators, pictures and up chimney flus. The large attic space was also inspected as well as a smaller attic on an extension to the rear of the structure. No evidence of roosting bats was found. Therefore, this structure was deemed as of negligeable suitability for bat roosts and is not considered further from herein.

4.3.8 Preliminary Roost Assessment Structure S16

The structure labelled S16 (AECOM, 2024) comprises a garage, shed, two stables and a loft (see ***Plate 42***, Appendix I). Gaps were noted between a corrugated roof and felt underlay in two stables at the northern end of the structure (see ***Plate 43***, Appendix I). The rest of the internal areas of the structure were inaccessible and could not be inspected internally. However, an access point into the loft through a broken

pain of glass on the southern facing side and some of the corrugated sheets on the roof and ridge were raised (see ***Plate 44***, Appendix I) which may provide access points to the loft. There were also gaps above cavity blocks on two former windows (see ***Plate 45***, Appendix I). This structure was found to contain relatively few PRFs overall, both on the internal and external surfaces of the structure and was therefore considered as of low suitability to support roosting bats.

4.3.9 Preliminary Roost Assessment Structure S20

The shed denoted as structure S20[3] is a boiler room and pump house which consists of concrete walls and a corrugated iron roof. The only visible access point was a gap above the door. However, there were no suitable roost features identified within the structure during the internal inspection. Therefore, this structure is deemed as of negligeable suitability for roosting bats and is not considered further.

Two cattle sheds were inspected, both structures are primarily constructed of corrugated iron and partially supported by cavity block walls which were sealed by a concrete cap. The structures are exposed to the outside elements and did not host any suitable features suitable for roosting bats. As such both these structures were considered as of negligeable suitability for roosting bats.

4.3.10 Preliminary Roost Assessment of Remaining Structures in Áras Mhuire

A shed constructed of corrugated iron along the southern boundary of Áras Mhuire was found to be very exposed to both light and the elements as there was no wall to the front of the structure. Any nooks and crevices were illuminated by natural light and were not considered sheltered enough to be deemed as PRFs. As such, the structure was considered as of negligeable suitability for roosting bats.

4.3.11 Preliminary Roost Assessment of a former House in 4 Portan

Two structures in the former dwelling known as 4 Portan including a former house (***Plate 46*** and ***Plate 47*** Appendix I) and garage (see ***Plate 48***, Appendix I) were inspected externally. However, there was no access to the garage, as such an internal inspection could not be completed within this structure. An internal inspection was conducted of both the lower and upper floors of the large house as well as the attic. The external inspection revealed a few PRFs, namely beneath ridge tiles and on a few raised tiles to the rear of the slated roof (see ***Plate 49***, Appendix I). Otherwise, the structure was well sealed. The internal inspection revealed the windows in the front of the former house were warped and a gap had appeared wide enough to provide access for bats (see ***Plate 50***, Appendix I). Otherwise, darkened spaces and gaps/ crevices in furniture (i.e. shelving units and kitchen presses), beneath a toilet lid and in storage spaces were inspected. Other PRFs inspected included beneath items of clothing and linen which had been left by the previous occupants.

The corps of a dead bat was found on the floor in an upstairs room (see ***Plate 51***, Appendix I). The identity of the bat could not be determined as the corpse was badly desiccated. Bat droppings were found during the inspection of the attic space (see ***Plate 52***, Appendix I). A sample of the droppings in the attic (see ***Plate 53***, Appendix I) was collected for DNA analysis. The structure was considered to be of low suitability for roosting bats given the access points identified and evidence of usage of the structure by bats.

Note: the label of the structure which was formerly 4 Portan house is unknown from the 2023 categorisation of structures in Section 3.3 and is therefore, denoted as 'S0?' in Figure 4 for reference.

4.3.12 Preliminary Roost Assessment of Remaining Structures in 4 Portan

There were few PRFs noted in the external survey of the garage to the side of the former house in 4 Portan. However, as this structure was locked, an internal inspection could not be undertaken during the follow-up PRA in August 2024.

Three other structure occur with the former dwelling which are currently in use by a landscaping contractor. The first of these was recently renovated which includes six stables with a relatively new tiled roof and felt underlay. The walls were constructed with cavity blocks. While there were no doors on the entrances to the stables, there were no visible PRFs during the internal inspections with missing cement

beneath two ridge tiles to the western side of the structure not during the external inspection. These stables are not proposed to be demolished as part of the proposed works and will be subject to a change of use to ancillary storage units. This structure was considered to be of negligible suitability overall for bat roosts and is not considered further.

A further shed with four stables is also located with the former dwelling in 4 Portan which is currently in use as a storage facility by a landscaping company is located along the northwest boundary. The structure is proposed for a change of use as an ancillary storage unit as part of the proposed development. The shed and stables are well maintained with no sign of suitable features to support roosting bats despite direct access from one open side of the structure. The were no PRFs noted on the external surfaces of this shed. As such, this structure is not considered suitable for roosting bats and is not considered further herein.

A further structure which comprised a large shed was not accessible and is currently in use by the landscaping company. The roof was constructed of tiles and the facia was also tiled with cavity block walls beneath the facia. The structure is proposed for a change of use as an ancillary storage unit as part of the proposed development. There were no signs of access points into the structure in the tiles, at the edges of a large door and pedestrian access doors which were all well maintained. As such, this structure is considered unsuitable for roosting bat and is not considered further in this Bat Mitigation Strategy.

Photographs showing evidence of roosting bats (i.e. bat droppings, oil staining from S07, S10, S14 and 4 Portan house as well as a bat corps in Portan house) are shown in Appendix I. Examples of PRFs identified in other structures with high, moderate or low suitability to host roosting bats are also provided in Appendix I.

4.4 Limitations of Surveys

During the survey of structures S10, S13 and S14 on 9th July 2024, the IR camera stopped recording 20 minutes into the survey. The IR camera was positioned facing the south-facing side of S10. This fault is not considered to compromise the data collected during the survey overall, as one surveyor observed the same side of this structure for the duration of the survey. Also, a second emergence survey with an IR camera recording the same side of S10 was completed on 14th August 2024 with two surveys completed in the 2023 emergence surveys.

A two-storey former house which is part of S06 could not be accessed during the PRA on 29th August 2024. As there were confirmed roosts in this part of the structure in the 2023 emergence surveys, it is still considered as supporting roosts of small numbers of common pipistrelle and soprano pipistrelle bats. Therefore, the restricted access to S06 which prevented surveyors conducting internal inspections is not considered to impact the results from the 2023 emergence surveys which remain valid for a period of up to 18 months[11]. The structure should be inspected internally prior to any demolition works taking place to determine the presence and/or location of bats potentially using the building as roosts. However, notwithstanding limited access to the structure, the data gathered during the emergence surveys in 2023 and 2024, and during the external PRA is considered sufficient in the preparation and to support the application for a derogation license.

There are a number of PRFs in the roof of S10 which could not be accessed by a ladder during the internal inspection on August 29th, 2024. These features should be inspected with the aid of a mobile elevated working platform (MEWP) prior to any demolition works (subject to granting of a derogation licence from the NPWS), as the results from the emergence surveys in 2023 and 2024, and the PRA in 2024 indicate the structure is used by common and soprano pipistrelle bats as a roost site.

There was no apparent access point to the loft of structure S14 which prevented surveyors undertaking an internal inspection of this area during the follow-up PRA. As there were access points and PRFs noted in

[11] CIEEM (2019) *Advice Note on the Lifespan of Ecological Reports & Surveys. April 2019.* Chartered Institute of Ecology and Environmental Management, Winchester, England

the loft and roof of the structure during the external inspection, it is advised an internal inspection is undertaken to determine evidence and/or location of any roosting bats prior to the proposed demolition works (separate to supervision of the proposed demolition works subject to granting of a derogation licence from the NPWS).

There was no access to the loft area of S16 as an external door into the loft area was locked during the follow-up PRA. As there were multiple PRFs with potential for access points into the loft, an internal inspection should be carried out to determine evidence and/or location of any roosting bats prior to the proposed demolition works (separate to supervision of the proposed demolition works subject to a derogation licence from the NPWS).

A garage to the side of the former house in 4 Portan was locked and could not be accessed during the follow-up PRA. Although, the structure was sealed and internal inspection of all internal spaces should be conducted prior to the proposed demolition works.

5 Works Which Could Potentially Affect Bats or Their Roosts

Any works which take place within the proposed development have the potential to result in disturbance of bats or their roosts, or in a worst-case scenario, the mortality of bats roosting in the fabric of the structures. The proposed activities during demolition works that have the potential to disturb bats, their breeding and resting places (as prescribed in law) include:

- Removal of furniture and other items with PRFs within structures (i.e. in former houses and sheds);
- Removal of slates/tiles, asbestos and corrugated iron panels from rooves (i.e. of former houses, stables, sheds and other outbuildings comprising the structures);
- Removal of ridge tiles and lead flashing on the apex of rooves, around chimneys, etc.;
- Removal of felt beneath rooves (i.e. in a number of the former houses and stables);
- Removal of facia, soffit boards and eaves;
- Removal of roof joists;
- Removal of timber doors and window frames (especially sash windows);
- Removal of lintels and sills (especially if timber);
- Removal/destruction of crevices in brick/stonework over 1cm wide in old or modern structures such as in chimneys and walls;
- Removal of insulation (i.e. between joists in ceilings or in partition walls), and;
- Removal of floorboards where cavities occur atop of adjoining walls.

The list provided is by no means exhaustive, with several other activities associated with the demolition of the structures having the potential to affect bats and their roosts. The responsibility is on the body carrying out the works and the acting ECoW under licence to ensure that bats are not present during such works. It is not a defence to maintain that there was no knowledge of bats being present and therefore 'accidental' disturbance of bats is not considered an adequate excuse.

Considering the confirmed roosts in a number of structures (i.e. S06, S07 and S10), evidence of bats within S14 and a former house in 4 Portan and PRFs identified in a number of other structures, there is an inherent risk that bats could be affected by the proposed works. The proposed works will result in the permanent loss of roost sites which will not be available following demolition of the structures. Given that, it is considered practical to supply alternative roost sites in the form the bat boxes and rocket-box bat houses during the demolition and post-demolition phases, an application for a Derogation Licence is considered necessary to address the potential disturbance of a bat roost and the unforeseen discovery of bats immediately prior to works commencing and to ensure that specific mitigation measures are adhered to in the form of conditions to the derogation licence.

6 Measures to Avoid, Reduce and Offset any Negative Affects on Bats and their Roosts

Mitigation measures have been proposed with reference to practices outlined in *Bat Mitigation Guidelines for Ireland*[12] and within *Bats & Bat Boxes: Guidance Notes for Agri-environment Schemes*[13]. The aims of the mitigation strategy are to avoid disturbance of roosting bats or mortality of bats during the proposed demolition, and to provide alternative roost sites to offset the loss of known roost sites.

6.1 Supervision of Demolition Works

A suitably qualified and experienced ecologist, and licenced bat worker will be employed as the acting ECoW to supervise demolition works within the proposed development site, and where necessary, remove bats from structures. In this instance, the exclusion of bats from structures with confirmed roosts and/or with PRFs, in advance of the commencement of works is not considered to be practically achievable in light of the potential for several small access/egress points in such structures.

Where possible, structures confirmed as bat roosts will be demolished during the spring or autumn periods, as the risk of accidental death or injury is lower at this time[14]. Bats may use roosts in smaller numbers in winter but may nevertheless be present.

The following measures are proposed, should the building demolition works take place during the active bat season (April to September):

- Presence/absence of bats will be determined by suitably qualified, experienced, and licensed ecologist(s) in advance of building demolition. Presence/absence will be determined by dawn re-entry survey the morning immediately prior to works commencing for each structure with confirmed roost/identified with PRFs. Presence/absence emergence surveys will take place during the activity season for bats from May to September which will include April and October should weather conditions be suitable (i.e. fair conditions with temperatures at or above 8°C). The survey will commence 1.5 hours prior to sunrise until 15 minutes thereafter and will cover all access points which were identified during the emergence surveys in 2023 and 2024;
- Prior to demolition works commencing, an internal inspection will be conducted in the following structures/parts of structures which were inaccessible during the follow-up PRA in August 2024 (see Section 4.4):

  - two-storey structures in S06;

  - the internal structure of the roof in S10;

  - the loft of S14;

  - the loft of S16, and;

  - the former garage in 4 Portan.

- Immediately following completion of the above (e.g. the same day), roof materials, soffit bords, window frames, etc. will be removed by hand by the demolition contractor, under the supervision of the licenced bat ecologist in daylight hours. The bat worker will inspect all PRFs such as beneath raised tiles/slates and other roof materials in advance of removal with an endoscope device, a mirror and torch may also be used in any areas that cannot be accessed with an endoscope. Where

[12] Kelleher, C., and Marnell, F. (2006). *Bat Mitigation Guidelines for Ireland.* Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.

[13] Bat Conservation Ireland (2015). *Bats & Bat Boxes: Guidance Notes for Agri-environmental Schemes*. August 2014. Updated January 2015. Available online at https://www.batconservationireland.org/wp-content/uploads/2015/05/BCIrelandGuidelines_BatBoxes.pdf

[14] Marnell, F., Kelleher, C. & Mullen, E. (2022). Bat mitigation guidelines for Ireland v2. *Irish Wildlife Manuals*, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

works cannot be completed within the space of a single day, the first step above will need to be repeated;

- The contractor undertaking demolition works on upper floors and other areas which are not accessible from ground level will facilitate safe access for the bat workers of these areas of structures to allow inspection of PRFs for roosting bats. Safe access may be facilitated via a scaffold, or via a MEWP or similar, and;
- In the event that bats are encountered during inspection of the roof, they will be removed by hand, and transferred to a bat box (for specification, refer to Section 6.2, below), which will be installed on site in advance of works.

The following measures are proposed, should the demolition works take place over the winter period (October to March):

- Presence/absence of bats will be determined by suitably qualified, experienced, and licensed ecologist(s) in advance of demolition works. Presence/absence will be determined primarily by roost inspection checks (e.g. using an endoscope device) but may be supplemented by a dawn re-entry surveys, if weather conditions are suitable. The survey will commence 1.5 hours prior to sunrise until 15 minutes thereafter and will cover all access points which were identified during the emergence surveys in 2023 and 2024;
- Prior to demolition works commencing, an internal inspection will be conducted in the following structures/parts of structures which were inaccessible during the follow-up PRA in August 2024 (see Section 4.4):

  - two-storey structures in S06;

  - the internal structure of the roof in S10;

  - the loft of S14;

  - the loft of S16, and;

  - the former garage in 4 Portan.

- Immediately following completion of the above, roof materials, soffit bords, window frames, etc. of structures will be removed by hand by the demolition contractor, under the supervision of the licenced bat ecologist in daylight hours. The bat worker will inspect all PRFs such as beneath raised tiles/slates and other roof materials in advance of removal with an endoscope device, a mirror and torch may also be used in any areas that cannot be accessed with an endoscope;
- The contractor undertaking demolition works on upper floors and other areas which are not accessible from ground level will facilitate safe access for the bat workers of these areas of structures to allow inspection of PRFs for roosting bats. Safe access may be facilitated via a scaffold, or via a MEWP or similar, and;
- In the event that bats are encountered during inspection of the roof, they will be removed by hand, and transferred to a bat box (for specification, refer to Section 6.2, below), which will be installed on site in advance of works.

6.2 Provision of Alternative Roost Facilities On-site During Demolition and Post Demolition Works

As part of mitigation measures for the proposed demolition works, alternative roosts appropriate to the bat species recorded will be provided nearby within the proposed development site. For common and soprano pipistrelles these are tree crevice-type boxes, with 25-35mm crevices. Therefore, a combination of 10 Schwegler type 2F bat boxes and 10 Schwegler type 1FF flat bat boxes (or similar models) (Figure 5) will be installed at a suitable location to be determined by the bat worker/ecologist within the site boundary.

The tree-mounted bat boxes will be installed either by the ecologist, or by the contractor under the supervision of the ecologist. It is preferable that each box faces a slightly different aspect from southeast to southwest facing, to provide a range of slightly differing temperature regimes (Bat Conservation Ireland, 2015). There will be no obstruction such as branches for a radius of one meter around where the bat boxes are to be hung. All bat boxes will be installed at least 3m above ground level to minimise the risk of interference by humans. The bat boxes will be located away from areas that are subject to artificial light spill. All boxes will be installed prior to the commencement of demolition works.

The bat boxes will be situated where bats are known to forage regularly (i.e. based on bat activity surveys) where there is shelter from strong wind and with exposure to sunlight. The results of the emergence surveys indicate that bats commute and forage along the western, northern hedgerows and along the wooded area in the east of the Merrycourt site (observation of surveyors) while the northern and southern hedgerows had concentrated activity adjacent to S16 and S20 in Áras Mhuire. These areas within Merrycourt and 4 Portan (i.e. possibly 'S05' from the 2023 categorisation of structures in Section 3.3 but labelled as 'S0?' for reference in Figure 4), were identified within the former dwellings during the follow-up PRA are illustrated in Figure 4 below.

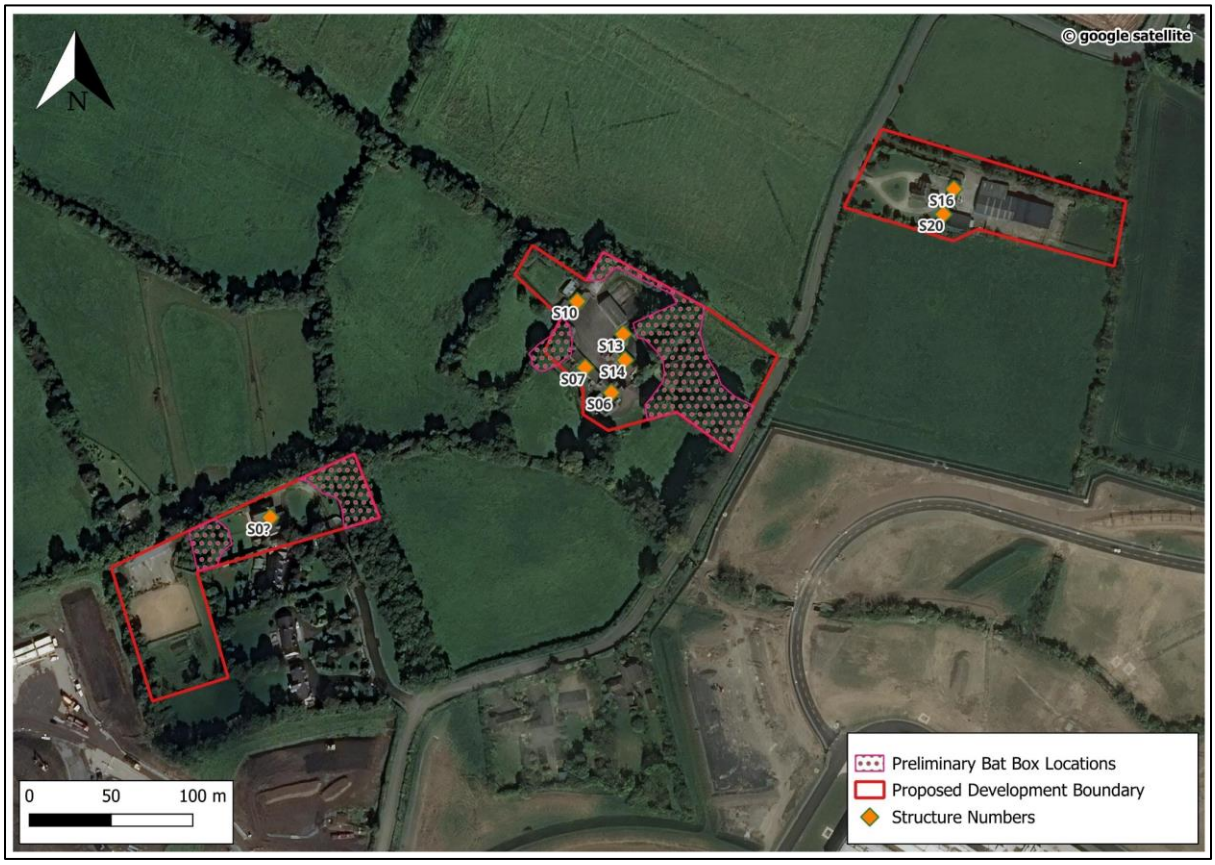

Figure 4: Preliminary Locations for installation of Bat Boxes.

The replacement roost should normally be situated as close as possible to the roost to be lost and match it closely in terms of size, height and aspect. The location of the replacement roost should be chosen to maximise the chances of the bats finding and adopting it. Ideally, it should be close to existing flight paths and have an entrance close to appropriate habitat. Many bat species prefer to fly in dark areas straight into vegetation, so external lighting on the site should be avoided.

Figure 5: Images of Schwegler type 1FF flat bat box (left) and Schwegler type 2F bat box (right)

The provision of three double chamber Rocket boxes will act as supplementary roost features for the loss of the existing structures containing bat roosts. Rocket boxes can support a large roosting area for bats including maternity roosts and provide a variety of micro-climates for bats, moving from one side of the box to another. Two of these supplementary roosts will be installed in close proximity to structures which host the existing roosts (i.e. S06, S07 and S10) and one in 4 Portan as a compensatory feature for the pipistrelle roost in Portan house, a minimum of two weeks prior to demolition works commencing. The location of each Rocket box will also be as close as possible to suitable foraging and commuting habitat (i.e. hedgerows, treelines and wooded areas) as well as the above structures to optimise their potential uptake by any roosting bats impacted by the proposed works. The supplementary roosts will be mounted on a pole and installed 5-7 metres above ground with maximum exposure to sun-light with an aspect of between southeast and southwest. The pre-liminary locations where the Rocket boxes are to be erected are depicted in Figure 6 below and a photograph of same is provided in ***Plate 54*** Appendix I.

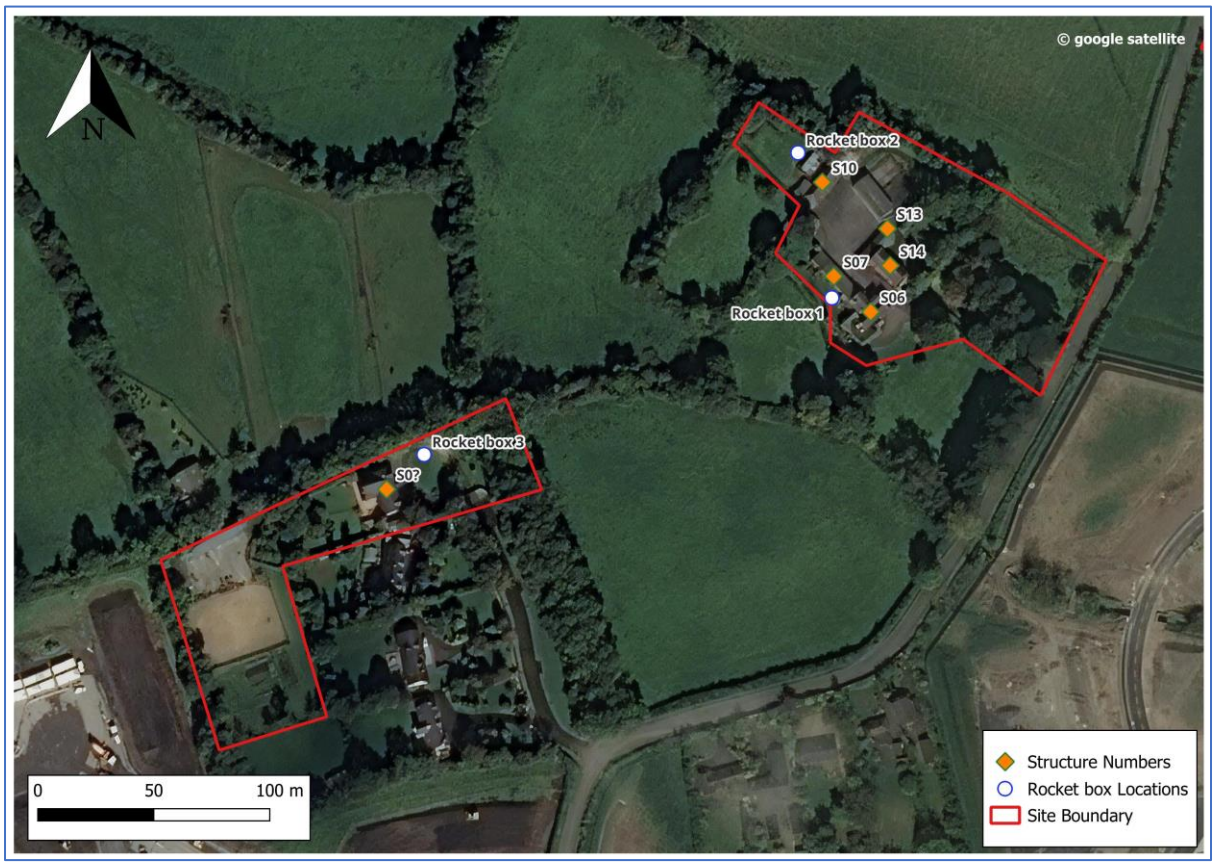

Figure 6: Image showing Preliminary Locations of Rocket boxes.

6.3 Reporting to the NPWS

A report documenting the adherence to the measures prescribed within Section 6.1 and 6.2 of this report will be produced by the licensed ecologist and forwarded to the NPWS within three months of completion of works. The success of the proposed strategy will be measured by the avoidance of mortality of any bats during demolition works, and the provision of alternative roosting sites in the lands during and after completion of the works.

7 Post-demolition Works Monitoring

While the success of the proposed strategy will not be measured by occupancy of roosts by bats, it is considered to be best practice and appropriate to implement a monitoring plan to gather information and assess whether the bat population has responded favourably to mitigation measures[11]. In this instance, post-construction monitoring checks of occupancy of the alternative roost facilities will be undertaken as described in further detail below.

7.1 Monitoring of Alternative Roosts (Bat Boxes)

It is proposed that a five-year post-installation monitoring programme will be undertaken. The bat boxes and Rocket boxes will be checked for presence of bats or signs of bats on a bi-annual basis between August and September in years 1, 3 and 5 post-installation by an appropriately licensed and qualified ecologist. The results of these surveys will be recorded and shared with the local authority and the NPWS.

8 Conclusions

The application relates to specific impacts on bats and/or their roosts arising from proposed demolition works at lands within Gunnocks and Portan, Clonee, Co. Meath. Mitigation measures to be implemented by a SQE to reduce potential impacts on bats as far as possible during work have been provided. The

strategy outlined in this report includes the provision of alternative roosting sites for the duration of the proposed works (*i.e.* the provision of bat boxes and Rocket boxes). Considering the size of the roosts identified in the proposed development site, and the current status of the common species identified roosting on site; common and soprano pipistrelles are of 'Least Concern'[4], have widespread distribution and their population in Ireland is considered to be stable, it can be concluded that following the implementation of measures outlined in Section 6 of this report, the proposed development will not be detrimental to the maintenance of the soprano pipistrelle bat at a favourable conservation status in its natural range.

Appendix I

Showing structures, evidence of roosting bats, roost access points and potential roost features (PRFs) associated with structures within three former dwellings in the proposed development.

Plate 1:Single-storey structure to the front of S06

Plate 2:Two-storey structure to the rear of S06

Plate 3:Access point for common and soprano pipistrelle roosts recorded on 25th June and 23rd July in right hand stable in S07

Plate 4: Access point for soprano pipistrelle roost recorded on 25th June in right hand stable in S07

Plate 5: Access point for common and soprano pipistrelle roosts recorded on 23rd July in second stable from left in S07

Plate 6: Access point for soprano pipistrelle bats recorded on 9th July in right stable from courtyard in S10

Plate 7:Emegence point for probable common pipistrelle on 9th July in rear of S10

Plate 8:Re-entry point of common pipistrelle in rear of S10 (left) and a soprano pipistrelle in an adjoining structure (right) to the rear of S10

Plate 9: PRFs beneath a cistern and behind a radiator in single storey of S06

Plate 10: PRFs between ceiling and presses, inside a kitchen unit and between worktop and dishwasher in single storey of S06

Plate 11: Crevices under lead flashing and soffit board in the single storey section of S06

Plate 12: PRFs with access points into the attic of a two-storey structure in S06

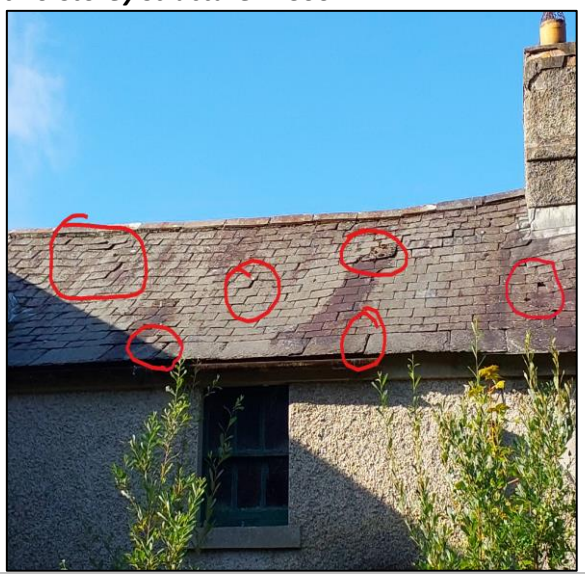

Plate 13: Multiple PRFs in roof, ridge tiles and roof window with access into attic of a tow-storey structure in S06

Plate 14: PRF beneath lead flashing in a two-storey structure in S06

Plate 15: PRFs in a gap between window frames in a tow-storey structure in S06

Plate 16: Two stables in S07 (left from the courtyard)

Plate 17: Example of one of the former stables in S07

Plate 18: Example of bat droppings found in 2 no. stables in S07

Plate 19: An access point into the cavity of a wooden partition in the stables in S07

Plate 20: Oil staining on a light bulb at the entrance to a cavity in the stables in S07

Plate 21: Entrance to right hand stable where evidence of bat droppings were found in S07

Plate 22: Location where bat droppings were found between a beam and wall in S07

Plate 23:Stable entrance on right-hand side of S10 noted to provide access point for bats

Plate 24: Stables in S10 from courtyard including access through open doors and openings in vents

Plate 25: Bat droppings found on a wall in the first stable from courtyard in S10

Plate 26: Gaps between gaps between a felt underlay and the asbestos roof in S10

Plate 27: Gaps between steel ridge and asbestos sheets in the roof of S10

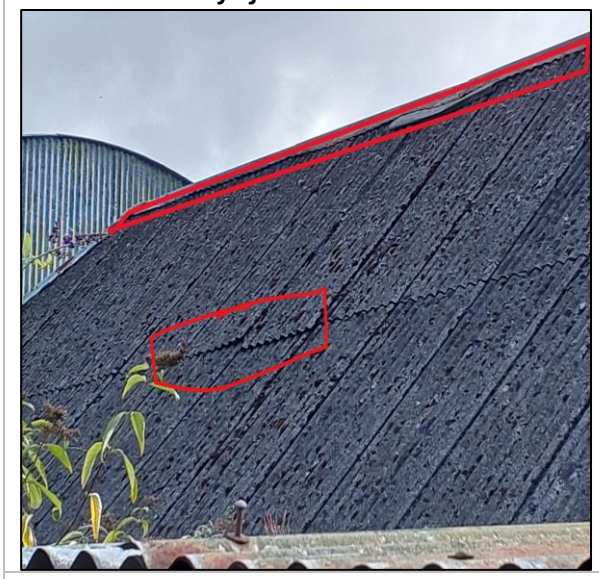

Plate 28: Access point through a broken window to the rear of S10

Plate 29: Gap between soffit board and rear wall in S10

Plate 30: Example of former stables in the structure denoted S13

Plate 31: Cavities between the top the rear wall and roof in a stable in S13

Plate 32: Multiple gaps between corrugated roof and felt underlay in S13

Plate 33: A two-storey structure including eight stables and a loft denoted S14

Plate 34: Crevices between wall and ceiling floorboards in stables in S14

Plate 35: Access to the stables in S14 is primarily through missing doors or where the top half of doors were open

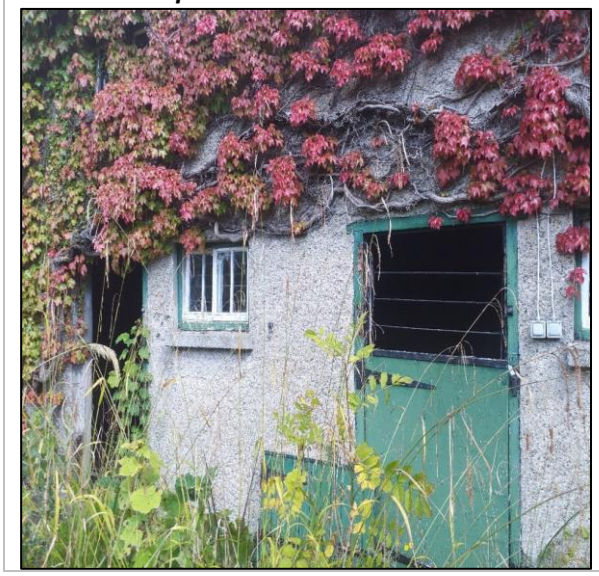

Plate 36:Open windows provide access into the loft on north-facing side of S14

Plate 37: Gaps were visible between window frames into the loft on south-facing side of S14

Plate 38: Crevice between soffit board and wall on south-facing side of S14

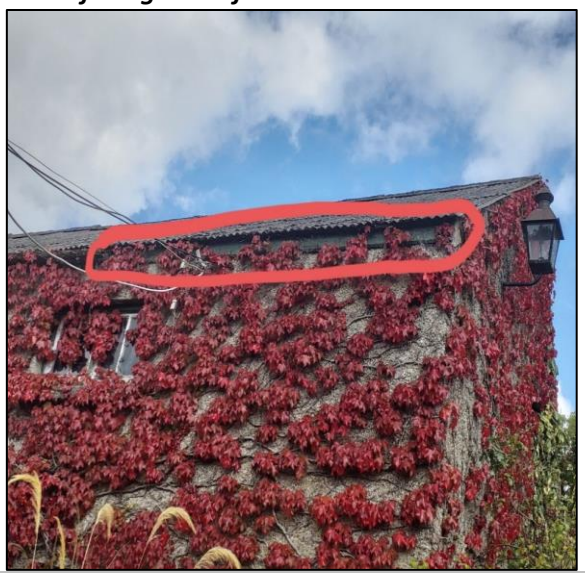

Plate 39: Gaps between ridge and roof panels provide PRFs in S14

Plate 40: A cabin to the rear of S10

Plate 41:Gaps in the roof of a cabin in Merrycourt act as a PRF

Plate 42:This structure, denoted as S16 was a former multipurpose building as a garage and shed with stables to the rear

Plate 43: Gaps between corrugated roof and felt underlay provide PRFs in roof of two stables in S16

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Plate 45: Crevices beneath ridging on the roof and access point into a shed in east facing side of S16

Plate 46: The front of a former house in 4 Portan

Plate 47: The rear of a former house in 4 Portan

Plate 48: A former garage adjacent to the side of a former house in 4 Portan

Plate 49: Raised ridge tiles and slates in the roof of a former house in 4 Portan

Plate 50: Gap in warped window frames provided access into former house in 4 Portan

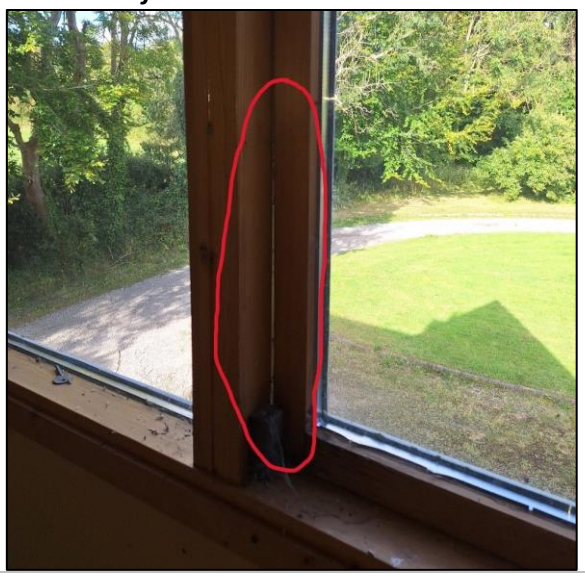

Plate 51: Dead bat corpse found in an upstairs front room of former house in 4 Portan next to gaps in two warped windows

Plate 52: View of attic in former house in 4 Portan

Plate 53: Bat droppings in the attic of the former house in 4 Portan

Plate 54: Example of a pole-mounted Rocket box

Appendix II: Ecological Constraints Note. Demolition of Houses Application (Prepared by AECOM Ireland Ltd. in January 2024).

Quality information

Prepared by	Checked by	Verified by	Approved by
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Revision History

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1	11 October 2023	Draft for client review			
2	27 October 2023	Draft for client review			
3	12 January 2024	Final Draft			

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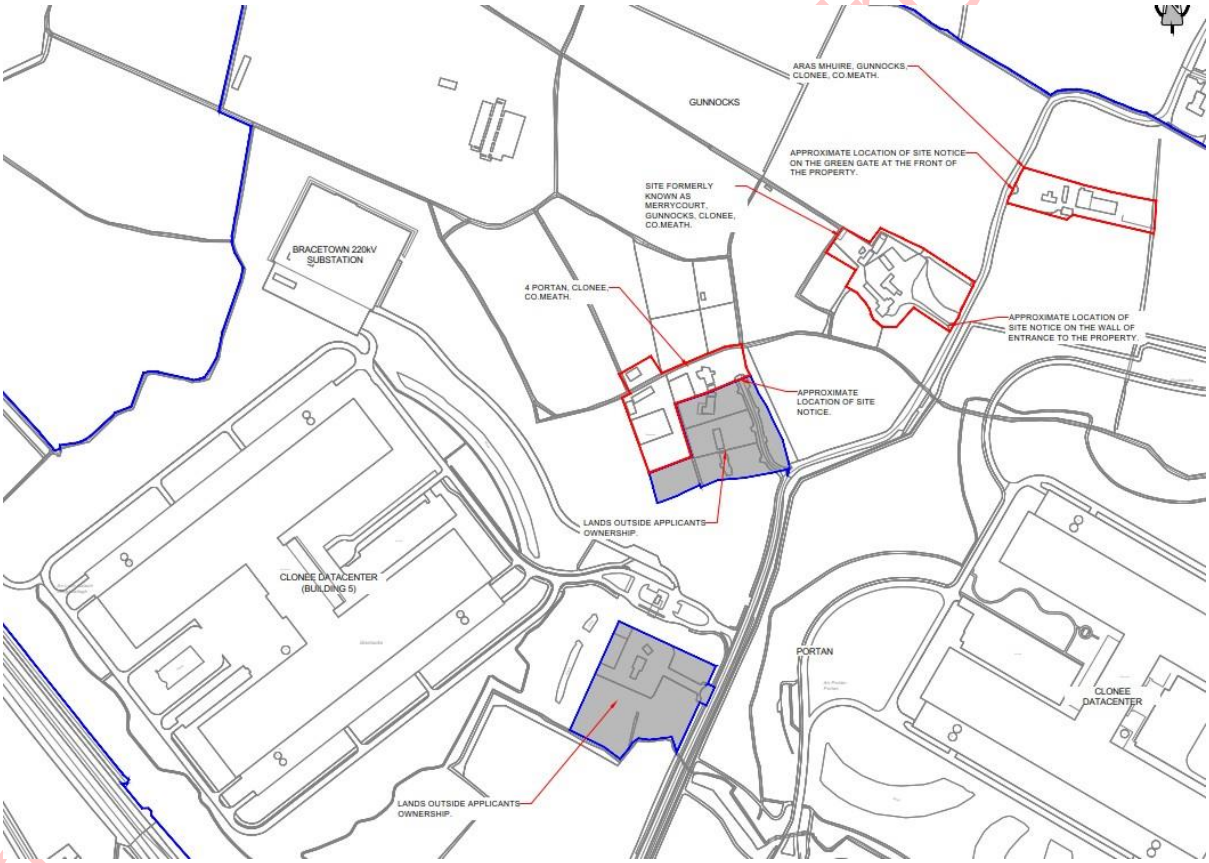
1. Introduction

1.1 Background

AECOM was commissioned by Runways Information Services Limited (the Client) to carry out a preliminary roost assessment (PRA) and bat roost emergence surveys in relation to the proposed demolition of three residential properties and associated outbuildings near the Client's data centre campus in Clonee, Co Meath (herein referred to as 'Proposed Scheme'). An ecological walkover survey was also carried out during the PRA survey. This Ecological Constraints Note (ECN) details the findings of these surveys, assesses the ecological constraints, and provides mitigation measures and / or enhancements.

The extent of the Proposed Scheme is hereafter referred to as the 'Site'. The Site is located on lands at Portan and Gunnocks, to the north of Clonee Village, County Meath and is surrounded by agricultural fields with a number of industrial buildings nearby, including the Meta datacentre. House demolitions are proposed to occur inthree locations (4 Portan, Site formerly known as Merrycourt and Áras Mhuire), as shown in Plate 1. The approximate Irish Central Grid Reference for the Áras Mhuire property is O 04204 42526, O 03786 42317 for 4 Portan property, and for the Site formerly known as Merrycourt property is O 03987 42436.

Plate 1. Site



1.2 Aims and objectives

This ecological assessment identifies whether there are known or potential ecological constraints (e.g. protected and notable habitats, and invasive, protected, and notable species) that may constrain the Proposed Scheme. It outlines the methods for the field survey carried out, and the results obtained to establish the baseline conditions, in particular, with respect of protected and notable species within the potential zone of influence (ZoI) of the Proposed Scheme. It also addresses relevant wildlife legislation, planning policy and local council policy as summarised below in Section 2.

Throughout this ECN, species are given their common and scientific names when first referred to and their common names only thereafter. All distances are cited as the shortest distance 'as the crow flies', unless otherwise specified.

1.3 Quality assurance

This ECN, and field survey described within it, has been completed in accordance with the AECOM Integrated Management System (IMS). AECOM's IMS places great emphasis on professionalism, technical excellence, its quality as well as covering all aspects of environmental and Health and Safety management. All staff members are committed to establishing and maintaining our accreditation to the relevant international standards namely BSEN ISO 9001:2008 and 14001:2004 and BS OHSAS 18001:2007. In addition, our IMS requires careful selection and monitoring of the performance of all sub consultants and contractors.

1.4 Limitations

Identifying evidence of mammals can be more difficult in the summer due to the thick vegetation during this time period. Although the ecological walkover survey was carried out in June, this survey and assessment has been conducted as robustly as possible in the context of these restrictions and is therefore not considered to be a significant limitation.

Due technical difficulties arising from a Batlogger during the August 2023 surveys, there was no bat acoustic data recorded for structure S10. However, this is not considered to be a significant limitation as S10 structure was observed visually and S10 was surveyed again during the September 2023 survey.

There were no other significant limitations to constrain the findings of this ECN.

2. Legislative and planning policy context

The following legislation was considered for this assessment:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive');
- Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive');
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (as amended) (the 'Water Framework Directive');
- Regulation 1143/2014 on the prevention and management of the introduction and spread of invasive alien species (the 'Invasive Alien Species Regulations');
- Convention on Wetlands of International Importance ('Ramsar Convention');
- The Planning and Development Acts 2000 to 2021 (collectively referred to as the 'PDA') and the Planning and Development (Amendment) Regulations 2022;
- The Wildlife Acts 1976 to 2018 and the Wildlife (Amendment) Act 2000 (collectively referred to as the 'Wildlife Acts');
- The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011) (as amended) (the 'Habitats Regulations');
- Flora (Protection) Order 2015 S.I 356/2015 (the 'Flora Protection Order');
- Fisheries Consolidation Act 1959 (No. 14 of 1959) (as amended) (the 'Fisheries Consolidation Act');
- The Inland Fisheries Act 2010 (No. 10 of 2010) (as amended) (the 'Inland Fisheries Act');
- EC Environmental Objectives (Surface Waters) Regulations 2009 (SI 272 of 2009); and,
- Local Government (Water Pollution) Acts 1977 to 1990, as amended (the 'Water Pollution Acts').

Note that compliance with legislation may require the attainment of relevant protected species derogation licences prior to implementing works.

2.1 Relevant planning policy and guidance

The following planning policy is also relevant to the Proposed Scheme:

- The Project Ireland 2040 National Planning Framework (NPF) (Department of Housing, Planning, and Local Government (DHPLG), 2018);
- The National Biodiversity Plan 2017-2021 (Department of Culture, Heritage and the Gaeltacht (DCHG), 2017);
- Meath County Development Plan 2021-2027 (Meath County Council (MCC), 2021); and,
- County Meath Biodiversity Action Plan 2015-2020 (MCC, 2015).

3. Methods

3.1 Field survey

3.1.1 Ecological walkover and PRA survey

An ecological walkover and PRA survey was carried out on 7 June 2023 within the accessible areas of the three properties within the Proposed Scheme and the ZoI of the Proposed Scheme (hereafter referred to as the Survey Area), by experienced AECOM Ecologists.

The ecological walkover survey involved an inspection of habitats in accordance with 'A Guide to Habitats in Ireland' (Fossitt, 2000) and 'Best Practice Guidance for Habitat Survey and Mapping' (Smith *et al.*, 2011) and a search for evidence of or potential for target species (i.e., protected, notable, and invasive species) within the ZoI. Survey data were collected using a handheld mobile mapping device.

3.1.1.1 Potential to support protected and notable species

The standard habitat survey method was 'extended' to identify the potential of habitats or features (e.g. built features) to support protected and notable species. A search for target features (e.g., badger setts, otter holts, common frog) was carried out if viable habitat existed and were accessible. Direct sightings and indirect signs (e.g. field signs) of protected and/or invasive species or auditory evidence were recorded if present.

3.1.1.2 Invasive non-native plant species

During the ecological walkover survey, a search was made for Scheduled invasive species and species listed as invasive species of high-impact in Ireland by the National Biodiversity Data Centre (NBDC). Locations of such species were mapped, and notes were made including species, extent, maturity, and evidence of treatment.

3.1.1.3 Preliminary roost assessment

A preliminary bat roost suitability assessment of buildings was carried out during the walkover survey following guidance from Bat Conservation Trust (BCT) (Collins, 2016).

During daylight hours, accessible buildings within the Survey Area were subject to a visual ground-based PRA. The PRA was carried out to assess the suitability of structures to support roosting bats and to identify the presence of potential roost features (PRFs) and access points.

External signs that bats are using a building, structure or tree as a roost can include:

- presence of entry points such as suitably sized gaps and crevices;
- bat droppings: black droppings, 5-10 mm long that crumble to a fine dust when crushed and may be located on the ground or stuck to tree trunks or branches;
- staining: secretions from bat fur, which can cause oily brown stains in the vicinity of roost entrances. urine stains which may be present below the entrance to the roost;
- audible squeaking from within the roost site;
- odour, which may be indicative of a large roost; and,
- flies around the entrance of a roost, attracted by the smell of bat droppings.

Updated BCT guidelines has been published (Collins, 2023) after the PRA was carried out and thus, the categorisation of buildings within the Survey Area were categorised as having Negligible, Low, Moderate, or High suitability for roosting bats in accordance with older BCT guidelines (Collins, 2016) as set out in Table 3.1. Bat roost suitability categories

Table 3.1. Bat roost suitability categories

Suitability	Description of roosting habitats
Negligible	Negligible habitat features on Site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikelyto be suitable for maternity or hibernation).

	A tree of sufficient size and age to contain PRF but with none seen from the ground or features seen withonly very limited roosting potential.
Moderate	A structure or tree with one or more PRF that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respectto roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more PRF that are obviously suitable for use by larger numbers of bats on amore regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

Source: Collins (2016).

3.1.2 Bat emergence surveys

3.1.2.1 Survey methodology

Survey methods were devised following standard methodology in accordance and following recommendations and good practice as highlighted in Bat Surveys: Good Practice Guidelines (3rd Edition), produced by BCT (Collins, 2016) (Note refer to (Collins, 2023) for the most up to date guidance). In addition, the survey method hasbeen informed by the recent Interim Guidance Note (BCT, 2022) which supersedes Collins (2016) and details thenew requirement for night vision aids (NVA; e.g. infrared (IR) cameras) during roost surveys (to be phased-in in full by 2024) and provides comments on the efficacy of pre-dawn surveys.

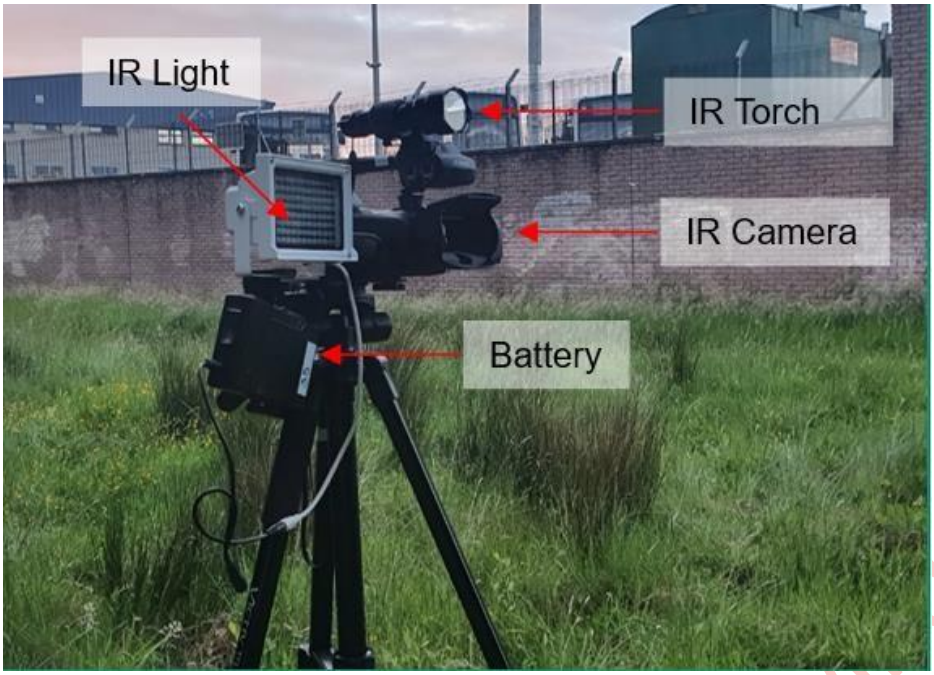
Following Collins (2016) and BCT (2022), structures / buildings of High bat roosting potential were subjected to three dusk surveys, structures / buildings of Moderate bat roosting potential were subjected to two dusk surveys and structures / buildings of Low bat roosting potential were subjected to one dusk survey. Dusk emergence surveys commenced at least 15 minutes prior to sunset and ended 1.5 to 2 hours after sunset.

Emergence surveys of High and Moderate structures at the Site formerly known as Merrycourt property were carried out on 31 July, 15 August, and 12 September 2023. An emergence survey of the Low structures at the Áras Mhuire property were carried on 10 August 2023. A static detector was also deployed on 15 August 2023 within the treeline near the entrance of the Site formerly known as Merrycourt property to supplement the surveys and record general bat activity.

Surveyors positioned themselves with clear views of potential access features identified during the PRA prior to dusk. The structure was watched and if any bats emerged or re-entered, the surveyors attempted to pinpoint the roost location, and identify and count the number of bats emerging / re-entering, where light conditions permitted. Bat detectors were employed as a means of recording bat echolocation calls and identifying species present. Surveyors listened for bats using detectors and on hearing a bat, they attempted to identify species, flight direction, height, and bat behaviour.

In addition, to supplement the surveys, IR cameras were deployed. The cameras were set up to face potential access features and IR cameras were equipped with a torch-style IR light (for pin-pointing features) and a SM4 static detector and/or a Batlogger M held by a surveyor. On one occasion, an IR flood light was used to give a wider field of view of a structure with high bat roost suitability at the Site formerly known as Merrycourt property (reference S06). An indication of the camera setup is presented in Plate 2.

Plate 2. Bat emergence surveys



3.1.2.2 Data analysis and collection

All detectors used recorded continuously throughout the survey, in real-time (i.e. including all calls and gaps, allowing distinctive 'rhythms' to be ascertained) and in full spectrum (i.e. all frequencies are recorded). This results in a complete sonogram and allows detailed analysis of the audio recording.

Data collected during surveys were stored and subsequently analysed using Kaleidoscope Pro 5.3.6 specialist software to identify any bats not detected in the field by the surveyors and to confirm species identifications madein the field.

Footage from the IR cameras deployed was analysed using VLC media player to identify the emergence of bats from any of the structures. The videos were played back at double speed with a motion detection tool used to pinpoint any movement of bats and determine potential roost locations.

All survey data were recorded using Esri Field Maps application on a handheld mobile mapping device or was handwritten and upload to the server. Use of GPS and aerial imagery allowed for relatively accurate locational data to be recorded on-site.

4. Field survey results

4.1.1 Habitats

The Site consists of three residential properties (Site formerly known as Merrycourt, Gunnocks, Clonee, Co. Meath, Áras Mhuire, Gunnocks, Clonee, Co. Meath, D15 K853, and 4 Portan, Clonee, Co. Meath, D15 XR71). These properties have broadly similar habitats and consist primarily of buildings and artificial surfaces that are enclosed by surrounding improved grasslands, scattered trees, hedgerows, treelines, woodland and ornamental scrub. There are also a number of industrial/commercial buildings nearby such as the Bracetown Substation and Clonee Substation to the west and east of the Site. No protected or notable native plant species were recorded within the Survey Area during the field survey.

Summary descriptions of the habitats recorded within each residential property are provided below.

4 Portan property:

The section of the Site known as the 4 Portan property is dominated by gravel pavements and buildings / structures (Fossitt code: BL3) consisting of a large residential premise with a garage, sand school and a number of sheds to the rear of the property. The 4 Portan property is located at the end of a cul-de-sac off the main Portan Road. The buildings and artificial surfaces at this property are of negligible ecological value. Some of the buildings are associated with small areas of amenity grassland (GA2), planted trees (WD5) and beech *Fagus sylvatica* hedging (WL1) and ornamental shrubs (WS3).

There are also some mature trees present within the surrounding property which include scattered trees (WD5) and mature treelines (WL2). These are dominated by approximately 18 m tall ash *Fraxinus excelsior* with some occasional hawthorn *Crataegus monogyna* and silver birch *Betula pendula* present. On the peripherals of this property, there are also grassy verges (GS2) dominated by grass species such as Yorkshire-fog *Holcus lanatus* and some forb species including cleavers *Galium aparine* and creeping buttercup *Ranunculus repens*.

Áras Mhuire property:

The section of the Site known as the Áras Mhuire property is dominated by buildings and artificial surfaces (BL3) as well as dry meadows and grassy verges (GS2). It is located on the eastern side of the Portan Road. This property has been vacant for over a year and the grassland within is unmanaged with typically tall sward heights. There is one large residential house in the centre of this property and multiple farm buildings and structures in the eastern section of the property. This property is bounded by broadleaved and conifer planted treelines (WL2) that comprise both immature and semi-mature, as well as native and non-native species. Ornamental shrubs (WS3) and hedgerows (WL1) dominated by bramble *Rubus fructicosus* agg. are also present on the peripherals of this property.

Site formerly known as Merrycourt property:

The section of the Site known as the Site formerly known as Merrycourt property is dominated by multiple buildings and structures which include derelict structures, residential premises, and gravel pavements. Site formerly known as Merrycourt is located in between the Áras Mhuire property and the 4 Portan property, along the western side of the Portan Road. At the entrance to the property, there are patches of scrub (WS1 and WS3), and ornamental flowers along the edges, with a small gravel road leading into the centre area. Both sides of the gravel road are bordered with dry meadow and grassy verges (GS2) dominated by species such as Yorkshire-fog, fescue *Festuca* sp., sweet vernal-grass *Anthoxanthum odoratum*, and some occasional creeping buttercup, willowherb *Epilobium* spp., and rush *Juncus* spp. are present. There are also a number of ornamental and conifer trees (WD5) species scattered throughout the Site and within bordering treelines (WL2), beginning at the entrance of the property. Species noted within treelines and throughout the front garden of the property include spruce *Picea* sp., cedar *Thuja* sp., maple *Acer* sp., ash and rose *Rosa* sp.

4.1.2 Invasive non-native species

One invasive species was identified within the Survey Area, which is cherry laurel *Prunus laurocerasus* (non-scheduled, therefore there is no requirement for management))Although it is not scheduled it still regarded as high-impact invasive species, because it spreads rapidly forming dense thickets according to the NBDC database), as shown on Figure 2. This species was identified north of the main house at the Áras Mhuire property within a hedgerow that is approximately 8 m in length (ITM: 704143, 742564).

4.1.3 Potential to support protected and notable species

4.1.3.1 Bats

A preliminary roost assessment of buildings within the Survey Area identified one structure (S06) to have High suitability for roosting bats and four structures (S07, S10, S13, S14) at the Site formerly known as Merrycourt property to have Moderate suitability for bats. These Moderate structures on this property are old horse stables that also likely provide suitability for bats for roosting and / or feeding and night perches. All other structures (S08, S09, S11, S12) in the Site formerly known as Merrycourt property had negligible suitability for roosting bats. Two structures at the Áras Mhuire property (S16 and S20) have Low suitability for roosing bats. All other structures (S15, S16, S17, S18, S19) in the Áras Mhuire property had negligible suitability for roosting bats. No structures (S01, S02, S03, S04, S05) within the 4 Portan property were identified as having suitability for roosting bats. Locations of PRA structures are shown on Figure 1 and refer to Appendix A for more information on the structures with bat roosting suitability within the Survey Area.

4.1.3.1.1 Bat emergence survey results

The bat emergence surveys carried out from July to September confirmed a total of three bat roosts within the Site. Refer to Table 4.1 for information on the bat emergence survey conditions. The confirmed roosts comprise three day roosts, within the structures: S07, S06 and S10. These structures could also provide roosting suitability during the summer and for hibernation. Species confirmed as roosting include common pipistrelle, and soprano pipistrelle. A summary of bat roosts is presented in Table 4.2 and indicative roost locations are shown on Figure 1.

Table 4.1. Bat emergence survey details

Date	Structure	Start	End	Sunset	Weather conditions
Site formerly known as Merrycourt					
31/07/2023	S14 (northern and southern facing), S13, S06, S07	21:08	22:53	21:23	18ºC, recent rain, 80% cloud cover, light breeze
15/08/2023	S14 (northern facing), S07, S06, S10	20:39	22:24	20:54	20ºC, dry, 70% cloud cover, still
12/09/2023	S10, S13, S06, S07	19:34	21:19	19:49	14ºC, dry, 10% cloud cover, light air
Áras Mhuire					
10/08/2023	S20, S16	20:49	22:34	21:04	19ºC, dry, 90% cloud cover, light air

Table 4.2. Bat roost details

Ref.	PRA	Survey date(s)	Confirmed Roost Type	Species	Total no. of bats seen to emerge from structure	Description	Notes
Site formerly known as Merrycourt							
S06	High	31/07/2023 15/08/2023 12/09/2023	Confirmed day roost.	Soprano pipistrelle Common pipistrelle	3	Emergence observed from roof of dormer window, and chimney. Emergence from chimney. Refer to Plate 3.	Two soprano pipistrelles emerged from roof of dormer window on 31/07/2023. A single common pipistrelle bat emerged through the chimney on 31/07/2023. No emergences observed during survey on 15/08/2023. Two bats emerged from roof window on 12/09/2023 but did not call.
S07	Moderate - Potentialnight roost / or feeding perch	31/07/2023 15/08/2023 12/09/2023	Confirmed day roost and potentialnight roost.	Common pipistrelle Soprano pipistrelle	4	Emergence from stables through open stable doors. Refer to Plate 3.	A single common pipistrelle emerged on 31/07/2023 from the far-right stable door. Three common pipistrelles emerged on 15/08/2023 from the two far-left stable doors. A single soprano pipistrelle also emerged from the far-left stable door. A single soprano pipistrelle was observed entering and foraging within the structure and then remerging through the open stable door approximately three times on the 12/09/2023. No evidence observed that the building was used asa feeding perch.
S10	Moderate - Potentialnight roost / or feeding perch	15/08/2023 12/09/2023	Confirmed day roost.	Common pipistrelle	4	Emergence through first two open stable doors on the left-hand side of the structure. Refer to Plate 3.	Four bats emerged on 15/08/2023 through the open stable door but no call was recorded. Two common pipistrelles emerged on 12/09/2023 through the open stable door. There was also one potential re-entry through the open stable door of a common pipistrelle, but no re-emergence was later observed. No evidence observed that the building was used asa night roost/feeding perch.
S13	Moderate - Potentialnight roost / or feeding perch	31/07/2023 12/09/2023	None	N/A	0	N/A	No emergences or feeding activity observed during surveys.

Ref.	PRA	Survey date(s)	Confirmed Roost Type	Species	Total no. of batsseen to emerge from structure	Description	Notes
S14	Moderate - Potentialnight roost / or feeding perch	31/07/2023 15/08/2023	None	N/A	0	N/A	No emergences or feeding activity observed during2023 surveys.
Áras Mhuire							
S16	Low - Potentialnight roost / or feeding perch	10/08/2023	None	N/A	0	N/A	No emergences or feeding activity observed duringAugust 2023 survey.
S20	Low - Potentialnight roost / or feeding perch	10/08/2023	None	N/A	0	N/A	No emergences or feeding activity observed duringAugust 2023 survey.

Áras Mhuire property:
No bats were observed roosting at either structure (S16, S20) identified as having low suitability on the Áras Mhuire property, nor were any bats observed using these buildings as feeding perches throughout the night of the survey.

Site formerly known as Merrycourt property:
At the Site formerly known as Merrycourt three roosts were identified within three of the five buildings surveyed across the three survey visits. A day roost of soprano pipistrelle and common pipistrelle in the same building, S06, a day roost of common pipistrelle in S07 as well as a potential night roost of soprano pipistrelle in the same structure; as well as a day roost of common pipistrelle in S10. The two remaining buildings, S13 and S14 were considered suitable for either night roosts or feeding perches for brown long-eared bats. But despite their presence on Site in July and August, no feeding activity within these buildings was observed.

A single soprano pipistrelle was confirmed emerging from S06 during the September 2023 survey at approximately 20:00 from the apex of the roof window, as shown in Plate 3**,** around eleven minutes after sunset. Another pipistrelle was observed emerging at 20:20 also from the apex of the roof window around 33 minutes after sunset. Two soprano pipistrelle bats were confirmed emerging from S06 during the September 2023 surveyat 22:49 out of the apex of the window on the roof, around 86 minutes after sunset. Both bats flew around the structure after emerging. There was also an emergence of a single common pipistrelle bat out of the chimney around 22:23 approximately 60 minutes after sunset. No bats were observed emerging from the structure during the August 2023 survey.

One soprano pipistrelle and two common pipistrelle bats were confirmed emerging from S07 over the course ofthe July, August and September 2023 surveys. In July, a single common pipistrelle bat was recorded emerging from the last stable door, as shown in Plate 3, around 26 minutes after sunset. The pipistrelle bat flew towards the centre of the courtyard. During the August survey, a single common pipistrelle bat was confirmed emergingfrom S07 from the third stable door and the bat flew towards the centre of the courtyard approximately 31 minutes after sunset. There were also three other emergences from the open stable doors, consisting of two common pipistrelles, approximately 24 minutes and 71 minutes after sunset as well as one soprano pipistrelle approximately 33 minutes after sunset. When the bats emerged, they flew towards the centre of the courtyard. During the September 2023 survey, a single soprano pipistrelle was observed foraging within the internal structure of S07. The single soprano pipistrelle bat was recorded entering and re-emerging from the structure approximately three times, between 20 minutes to 28 minutes after sunset.

Two confirmed common pipistrelle bats were recorded emerging from S10 during the September 2023 survey. The bats emerged together from the second stable door on the right-hand side of the structure, as shown in Plate 3, around 29 minutes after sunset. There was also a potential re-entry into the structure at 20:31 but no emergence was later observed. Four bats were also confirmed emerging during the August 2023 survey, but dueto technical difficulties associated with the Batlogger, the species was unconfirmed. The emergences were observed visually, and the same activity was recorded, including acoustic data, in the September survey and so itis highly likely the bats that emerged are also common pipistrelle bats. The bats emerged from the first door on the right-hand side of the stable at between 26 minutes and 32 minutes after sunset. For all emergences recorded, bats were observed to emerge and fly towards the back of the structure.

Plate 3. Roost locations at the Site formerly known as Merrycourt.

a) **S10: Common pipistrelle roost emergence points and flight directions**

b) **S06: Soprano pipistrelle and common pipistrelle roost emergence points**

c) S07: Common pipistrelle and soprano pipistrelle roost emergence points and flight directions

4.1.3.1.2 Incidental bat activity

Several bat species were recorded foraging and commuting around the Site including common pipistrelle, soprano pipistrelle, Leisler's bat, Nathusius' pipistrelle and notably more light-adverse species including *Myotis* sp., and brown long-eared bat. The most common bat recorded within or in the surrounding area at the properties; Site formerly known as Merrycourt and, Áras Mhuire, was common pipistrelle followed by soprano pipistrelle, and then Leisler's bat. The other species were recorded in small numbers. -

Áras Mhuire property:

In the Áras Mhuire property, common pipistrelle calls dominated, with 40% of calls registered during the August survey, followed by Leisler's bat with 36%, brown long-eared bat 15% and soprano pipistrelle just 9 %. The earliest record of bat activity during the August survey was of a Leisler's bat, approximately one minute after sunset, followed by a single soprano pipistrelle, approximately 16 minutes after sunset, then a single common pipistrelle bat. The first record of brown long-eared bat was approximately 53 minutes after sunset. The timings ofthese calls suggest that these are likely from bats roosting within the surrounding area, in particular a number of Leisler's bat calls were heard in the distance. The woodlands, treelines, and hedgerow habitats surrounding the property also provide suitable roosting, foraging and commuting habitat for bats.

Site formerly known as Merrycourt property:

At the Site formerly known as Merrycourt, the woodlands, treelines, and hedgerow habitats surrounding the property also provide suitable commuting and foraging habitat for bats. Multiple bat species were recorded around the buildings and in the surrounding area during the three surveys, including Leisler's bat, brown long-eared bat, *Myotis sp*. and Nathusius' pipistrelle, in addition to the common and soprano pipistrelle bats recorded roosting within the buildings on Site. The proportion of bat calls over time were typically dominated by common pipistrelle with 45% of calls, followed by soprano pipistrelle (14.5%), Leisler's bat (11%), and less than 2% combined from *Myotis sp*, brown long-eared and Nathusius' pipistrelles. Leisler's bats were heard on all surveys,often as early as 17 mins past sunset, and were heard mainly in the distance at a height or in the surrounding habitats. Leisler's were the most commonly recorded species in August. A single *Myotis* sp. pass, was recorded as early as 48 minutes after sunset, during the July and September surveys. Brown long-eared bats were recorded in both July and August foraging around structures S06, S07 and S14. In September, a single pass of Nathusius' pipistrelle was heard at 26 minutes after sunset commuting through the Site. The timings of the recordings of these three species suggest these bats are roosting in the vicinity of the Site, and possibly within the surrounding mature trees. There were many records of Leisler's bat social calls, throughout the surveys, coming from the vicinity of trees, adjacent to the entrance of the courtyard which suggests there could be a potential mating roost in the trees on this property.

4.1.3.2 Otter

The Site has no suitable habitat for otter as it comprises predominately buildings and artificial surfaces. No other evidence of otter *Lutra lutra*, including breeding or resting places (e.g., holts or lie-ups) were identified during the ecological walkover.

4.1.3.3 Badger

No evidence of badger *Meles meles* was recorded during the field survey. The Site has no suitable habitat for badger as it predominately consists of buildings and artificial surfaces. However, the surrounding habitat within the Survey Area has limited suitability for badger and could accommodate sett creation, particularly within the broadleaved woodland to the east of the 4 Portan property and the treelines surrounding each of the properties.

4.1.3.4 Other terrestrial mammals

No evidence of other mammals including hedgehog *Erinaceus europaeus*, Irish hare *Lepus timidus hibernicus*, Irish stoat *Mustela erminea hibernica*, pine marten *Martes martes*, pygmy shrew *Sorex minutus*, and red squirrel *Sciurus vulgaris* were identified during the field survey.

Although hedgehog, Irish stoat, and pygmy shrew are of conservation concern (they are all protected under the Wildlife Acts), these are fairly common and very widespread (categorised as 'Least Concern' in the Ireland Red List for terrestrial mammals). There are habitats present within and around the Site which could support these species for foraging and shelter. It has therefore been assumed that hedgehog, Irish stoat, and pygmy shrew are present within the ZoI of the Proposed Scheme. However, these species, if present, likely do not rely on the habitats within the Site as the majority are small in extent.

Furthermore, pine marten and red squirrel prefer large areas of woodland habitat which is absent from the Site. Therefore, these species are unlikely to be present.

4.1.3.5 Birds

Habitats within the Site offer suitable breeding habitat for several bird species. It is likely that common birds breedin the scrub, trees, and/or hedgerows within these properties. In addition, during the ecological walkover survey, itwas incidentally confirmed that barn swallow *Hirundo rustica* (Birds of Conservation Concern in Ireland (BoCCI) Amber-List (Gilbert *et al.,* 2021)) are nesting within the stables of the Site formerly known as Merrycourt property. During the bat emergence, barn swallows were seen frequently entering structures, in particular stable structures such as S07 and S13. A long-eared owl *Asio otus* was heard begging and seen flying within the tree line next to S10, approximately three minutes after sunset, during the July bat emergence surveys.

4.1.3.6 Amphibians

The Site has no suitable habitat for amphibians as it comprises predominately buildings and artificial surfaces.

4.1.3.7 Terrestrial invertebrates

No targeted invertebrate surveys were carried out during the ecological walkover. Overall, the habitats within theSite are considered unsuitable for protected, rare or notable invertebrate species as the majority of the Site is hardstanding. Terrestrial invertebrates are therefore not considered further in this ECN.

4.1.3.8 Other protected and notable species

No evidence of or suitable habitat for any other protected or notable species (i.e., fish and reptiles) was noted during the survey, and these species are not considered further in this ECN.

5. Identification of ecological constraints, impacts and recommendations

5.1 Approach to the identification of ecological constraints

The likelihood of the relevant ecological features constraining the Proposed Scheme has been assessed with reference to the scales described in Table 5.1. The higher the importance of the ecological feature for the conservation of biodiversity at international, national, and local scales, the more likely it is to be a material consideration during determination of the planning application for the Proposed Scheme.

Table 5.1. Potential scales of constraint / opportunity to the Proposed Scheme.

Scale of Constraint / Opportunity	Definition	
	Constraint	Opportunity
Major	Without further action and or mitigation on this issue, the project is unlikely to obtain consent (planning application or otherwise, where this is required), and will cause or risk legal offence(s) or non-compliance with policy. Further action could include survey and /or assessment of ecological features known or deemed likely to occur in the zone of influence. The issue is a material consideration to the consenting process (where required) and the action and / or mitigation required to address it is likely to be significant and / or not straightforward.	An opportunity exists to deliver significant ecological enhancement on or close to the Site for the ecological feature(s) in question, which singly or together are of high conservation value. The feature(s) are known to be present within the likely zone of influence or could reliably be predicted to move into it following enhancement. The overall nature conservation benefit of the enhancement(s) is likely to be high.
Moderate	Further action and/or mitigation on this issue is likely to be required for the project to obtain consent (planning application or otherwise, where this is required) or may be stipulated by a condition of consent, and without such action there may be legal offence(s) or non-compliance with policy. Further action could include survey and / or assessment, including of ecological features whose status is not yetsufficiently well known within the zone of influence. The action and / or mitigation required to address the issue is however likely to be moderate, and at this stage it is considered unlikely that it would pose a significant consenting risk to the project.	An opportunity exists to deliver ecological enhancement on or close to Site for the ecological feature(s) in question, which are of moderate conservation value. The feature(s) are known to be present within the likely zone of influence or could reliably be predicted to move into it following enhancement. The overall nature conservation benefit of the enhancement(s) is likely to be moderate.
Minor	The project is expected to obtain consent (planning application or otherwise, where this is required) without any further survey or assessment of this issue.However, a basic action is still required preconstruction or during construction, which may be stipulated by a condition of consent, to avoid possible legal offence(s) or non-compliance with policy. This is likely to involve ecological features that are not subject to special protection and are common and widespread. The action and/or mitigation required to address the issue is expected to be minimal and is unlikely to hinder the project (for example, clearance of vegetation during specified seasons).	An opportunity exists to deliver ecological enhancement likely to benefit relatively common and/or widespread species (e.g. provision of bird nest boxes) or to create or enhance a small area of habitat which is not of very high biodiversity value.
None	There is no constraint on the project because the ecological feature is absent from the Site and zone of influence, or if present then it is not subject to protection and/or it can clearly be determinedthat there is no possibility of a significant adverse effect.	

5.2 Mitigation hierarchy

The Proposed Scheme should seek to follow the mitigation hierarchy where there is potential for impacts onidentified ecological receptors:

1. Avoid features where possible.
2. Minimise impact by design, method of working or other measures (mitigation) (e.g. by enhancing existing features).
3. Compensate for significant residual impacts (e.g. by providing suitable habitats elsewhere on the client-owned parts of the wider area).

This hierarchy requires the highest level to be applied where possible. Only where this cannot reasonably be adopted should lower levels be considered. The rationale for the proposed mitigation and/or compensation should be provided, including sufficient detail to show that these measures are feasible and would be provided.

5.3 Constraints and recommendations

The constraints and recommendations given below are based on the results of the ecological walkover, PRA survey, and bat emergence surveys.

5.3.1 Habitats

Most of the Site is composed of hardstanding within the Proposed Scheme and is enclosed by overgrown vegetation. Amenity grassland and dry meadows and grassy verges comprise limited botanical diversity. However, there are parcels of broadleaved / conifer treelines and woodland, scrub, ornamental scrub, and hedgerows which have potential to provide foraging and commuting opportunities for a variety of faunal species, albeit they are also composed of common and widespread species. Habitats including woodlands, treelines, and hedgerows within the Site will be retained as the Proposed Scheme is just in relation to the demolition of the existing structures.

Any habitat loss of grassland or disturbed hardstanding habitat is therefore considered to be of minor ecological significance and poses a **Minor constraint** to the Proposed Scheme.

5.3.2 Invasive non-native plant species

No Scheduled invasive species were identified within the Survey Area. However, the non-scheduled high-impact invasive species, cherry laurel, was present within the Survey Area, adjacent to the Áras Mhuire property. Any disturbance to this species during construction works poses a risk of causing their spread.

It is therefore recommended that biosecurity measures (i.e. prevention of spread) are implemented to reduce the risk of spread of invasive non-native species. This can include isolating (e.g. fencing) and signing the infested areas. In addition, all contractors and Site operatives should receive a toolbox talk when works commence in the vicinity of the infested areas, for all recorded invasive non-native species, particularly cherry laurel. Non-scheduled invasive species therefore pose a **Minor constraint** to the Proposed Scheme.

5.3.3 Protected and notable species

5.3.3.1 Roosting bats

Avoiding demolition to existing roosts is the preferred option in all cases.

As the planned works will result in the loss of at least three confirmed bat roosts, a Derogation Licence is required. This should be applied for, with the assistance of a licensed bat specialist, to the NPWS. An Ecological Clerk of Works (ECoW) that is a qualified ecologist must also be appointed to oversee and advise both contractors and Site operators on mitigation implementation including the provision of bat boxes in advance of the demolition as well as overseeing of the demolition of buildings and structures. Mitigation measures regarding the demolition of these structures could include specific timing requirements (i.e., the structure with the confirmed roost to be demolished between September and October inclusive) and implementation of bat boxes to mitigate for the loss of roosting bat habitat. The number and types of bat boxes should be determined by the suitability qualified ecologist and implemented before the demolition of structures.

Therefore, roosting bats likely pose a **Moderate Constraint** to the Proposed Scheme given the importance of the Site for roosting bats.

5.3.3.2 Foraging and commuting bats

Bats are using the habitats within the Site and surrounding habitats, particularly woodland, treelines, and hedgerows for foraging and commuting. Therefore, removal of these habitats would adversely impact bats, however, these habitats will be retained as part of the Proposed Scheme.

Brown long-eared bats and *Myotis* sp., which are particularly light-adverse, were among the six species recorded within the area using the surrounding vegetation for foraging and commuting and potentially roosting. Measures must be undertaken to avoid disturbance, in particular light pollution during construction.

For the duration of the demolition any lighting proposal must adhere to guidance published by the Institute ofLighting Professionals (ILP) and BCT (ILP and BCT, 2023), including:

- there should be no illumination of any habitats and features used by large numbers of bats, by rare species or by highly light-adverse species;
- existing light levels should be maintained or reduced on a site where possible;
- lighting should be minimised wherever possible in terms of number of lights and the power of the lights (lux level). LED lighting should be used where possible and lighting units should lack ultraviolet (UV) elements. Blue content of light will be reduced and where possible lights in the warm white spectrum will be used. Using powerful lighting (e.g. flood lighting) on wildlife corridors can, for some species, effectively sever connectivity;
- light spill must be minimised on linear features (e.g. treelines, hedgerows), and woodland edges, and should not be subject to light spill greater than the existing baseline lux levels;
- directional lighting, facing and located away from the surrounding vegetation and any watercourses should be used. This avoidance is also particularly relevant to any woodland adjacent to the site; and,
- lighting should be turned off when not in use except to meet the minimum requirements for Health and Safety.

Therefore, with the implementation of lighting mitigation and also the retention of suitable habitats foraging and commuting bats likely pose only a **Minor constraint**.

5.3.3.3 Other terrestrial mammals

No evidence of other mammals including badger, otter, hedgehog, Irish hare, Irish stoat, pygmy shrew, which are protected under the Wildlife Acts, were identified during the field survey. However, these species have been previously identified in the wider area and/or are considered to be common and widespread. Therefore, these species could be present in suitable habitat within the Site and surrounding habitats.

Pre-construction surveys will be undertaken to confirm the occurrence of badger on Site and to check if any new setts within or in the immediate surroundings of the Site (150 m) have been established since the initial ecological walkover survey. No further survey is recommended for other mammals.

Standard measures to prevent entrapment of animals overnight should be implemented including:

- all works should be restricted to daylight hours;
- lighting, where necessary, should be kept to essential locations only, with the position and direction of lighting designed to minimise intrusion and disturbance to woodland and its nature conservation value. Using full cut-off lanterns would minimise light spillage onto adjacent areas;
- if relevant, drainage and attenuation ducts should restrict animal entry, and any temporary features which are liable to trap wildlife should be covered or have a means of escape fitted;
- any soil piles should be fenced off; and,
- any excavation must either be covered or fenced off at the end of each working day or include a means of escape for any animals which may fall in (e.g. mammal ladder or ramps).

Therefore, other mammals likely pose a **Minor constraint** to the Proposed Scheme given the ease of implementing the above measures.

5.3.3.4 Birds

All bird species are protected under the Wildlife Acts from intentional killing or injury, and disturbance during the breeding season (March to August, inclusive). This protection extends to the eggs, young and nests of birds.

Barn swallow (BoCCI Amber List (Gilbert *et al*., 2021)) were observed nesting in the stables of the Site formerly known as Merrycourt property within the Site. Therefore, these structures must not be removed during the breeding season (March to August, inclusive) unless supervised by a suitably experienced ecologist to confirm no presence of nesting birds.

Vegetation including treelines, hedgerows, and woodland will not be removed for the Proposed Scheme. However, small areas of woody vegetation including scrub may need to be removed for the demolition of the structures. This vegetation removal must not be undertaken during the bird breeding where possible. If vegetation removal cannot be avoided during the breeding season, and as a last resort suitable for smaller areas of vegetation only, a suitably experienced ecologist will check for active bird nests prior to the works taking place. Where active nest(s) are found, the ecologist will establish exclusion zone(s) of appropriate size from which

machinery, personnel and materials will be excluded until the nesting attempt(s) have finished. This latter methodof checking for active nests may result in project delays, therefore the preferred method is to carry out vegetation clearance outside the bird breeding season.

Therefore, birds are considered to pose a **Minor constraint** to the Proposed Scheme.

6. Summary

- Habitats including hedgerows, treelines, and woodlands within and adjacent to the Site will largely be retained. The Proposed Scheme will involve the demolition of three residential properties and associated outbuildings.
- A preliminary roost assessment of buildings within the Survey Area identified three structures (S06) at the Site formerly known as Merrycourt property to have High suitability for roosing bats, four structures (S07, S10, S13, S14) at the Site formerly known as Merrycourt property to have Moderate suitability for bats, two structures at the Áras Mhuire property (S16 and S20) to have Low suitability for roosting bats, and no structures within the 4 Portan property with suitability for roosting bats.
- At the Site formerly known as Merrycourt property, there are at least three confirmed day bat roosts (S06, S07, S10) within the Site. These structures could also provide roosting suitability during the summer and for hibernation. Species confirmed as roosting include common pipistrelle, and soprano pipistrelle. No bats were observed roosting at either structure (S16, S20) on the Áras Mhuire property, nor were any bats observed using these buildings as feeding perches throughout the night of the survey.
- The woodlands, treelines, and hedgerow habitats surrounding the properties provide suitable commuting and foraging habitat for bats. Multiple bat species were recorded around the buildings and in the surrounding area during the surveys, including common pipistrelle, soprano pipistrelle, Leisler's bat, and brown long-eared bat in the Áras Mhuire property and at the Site formerly known as Merrycourt property, common pipistrelle, soprano pipistrelle, Leisler's bat, Nathusius' pipistrelle as well as *Myotis* sp., and brown long-eared bat were recorded.
- Mitigation measures for roosting bats include appointment of an ECoW, installation of bat boxes in advance of the demolition, and application for a Derogation Licence prior to the demolition. Mitigation measures regarding the demolition of these structures could include specific timing requirements (i.e., the structure with the confirmed roost to be demolished between September and October inclusive). Furthermore, as bats use the surrounding habitats around the properties for foraging and commuting, any lighting mustadhere to guidance published by the Institute of Lighting Professionals and BCT, in particular during construction.
- General mitigation measures for other terrestrial mammal species including badger and otter have been provided, involving construction safeguards and compensation for any habitat loss.
- Demolition of buildings and structures with any nest(s) present / removal of vegetation should take place outside of the bird breeding season (March to August inclusive), unless first checked by a suitably experienced ecologist.

7. References

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8. Figures

Figure 1 – Location of structures within the Site with bat roost suitability and confirmed bat roostsFigure 2 – Other Constraints

Appendix A

Table 8.1. Structures with bat roosting suitability within the Survey Area

Reference	Description	PRF(s)	Photograph(s)	Suitability
Site formerly known as Merrycourt				
S06	House with pebbledwall and tiled roof that appears intact. Ivy growing on edges which obstructs views to the southern and western side of house.	Lifted and cracked slate tiles on west side of structure facing west about 4 meters high.	   	High for roosting suitability

Reference	Description	PRF(s)	Photograph(s)	Suitability
S07	Stables attached tomain house with corrugated roof. Minor ceiling space.	Open doors provide access inside.	 	Moderate for roost and/or feeding perches.
S10	Stables with pebbled wall, and corrugatedroof. Attic space.	Multiple access points through open doors.	 	Moderate for roost and/or feeding perches.
S13	Stables with pebbledwall and metal roof. Attic space.	Multiple access points through open doors.	 	Moderate for roost and/or feeding perches.

Reference	Description	PRF(s)	Photograph(s)	Suitability
S14	Two storey stable with metal roofing and pebbled wall. Ivy present. No openings into second floor visible from south side, but at north side, there are small windows partially opened withaccess to attic space.	Open windows provide access to interior.	  	Moderate for roost and/or feeding perches.
Áras Mhuire				
S16	Shed with concretewalls and metal roofing.	Gap at southwest corner of building leading into second floor	 	Low

Reference	Description	PRF(s)	Photograph(s)	Suitability
S20	Small shed approximately 2 x 5 m in area, with concrete wall and slanted metal roof.	Gaps between door and roof.		Low