

2025

Substation, Transformer Building,
Ardnacrusha, Co. Clare – Derogation
Licence Application Letter



Soprano pipistrelle

Tina Aughney 2016

Dr Tina Aughney
Bat Eco Services

Bat Eco Services, Ulex House, Drumheel, Lisduff, Virginia, Co. Cavan. A82 XW62.

Licensed Bat Specialist: Dr Tina Aughney (tina@batecoservices.com, 086 4049468)

NPWS licence C17/2023 (Licence to handle bats, expires 23rd January 2026);

NPWS licence 27/2023 (Licence to photograph/film bats, expires 31st December 2024);

NPWS licence DER/BAT 2022-36 (Survey licence, expires 24th March 2025).

Statement of Authority: Dr Aughney has worked as a Bat Specialist since 2000 and has undertaken extensive survey work for all Irish bat species including large scale development projects, road schemes, residential developments, wind farm developments and smaller projects in relation to building renovation or habitat enhancement. She was a monitoring co-ordinator and trainer for Bat Conservation Ireland for 20 years. She is a co-author of the 2014 publication *Irish Bats in the 21st Century*. This book received the 2015 CIEEM award for Information Sharing. Dr Aughney is a contributing author for the Atlas of Mammals in Ireland 2010-2015.

All analysis and reporting is completed by Dr Tina Aughney. Data collected and surveying is completed with the assistance of a trained field assistant.

Mr. Shaun Boyle (Field Assistant) NPWS licence DER/BAT 2022-37 (Survey licence, expires 24th March 2025).

Client: ESB Networks

Project Name & Location: Substation, Transformer Building, Ardnacrusha, Co. Clare

Report Revision History

| Date of Issue | Draft Number | Issued To (process of issuing) |
|------------------------------|--------------|--------------------------------------|
| 1 st January 2024 | Letter | Prepared for NPWS Derogation Licence |
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| | | |

Purpose

This document has been prepared as a Letter for NPWS. Only the most up to-date report should be consulted. All previous drafts/reports are deemed redundant in relation to the named site.

Bat Eco Service accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Carbon Footprint Policy

It is the policy of Bat Eco Services to provide documentation digitally in order to reduce carbon footprint. Printing of reports etc. is avoided, where possible.

Bat Record Submission Policy

It is the policy of Bat Eco Services to submit all bat records to Bat Conservation Ireland database one year post-surveying. This is to ensure that a high level bat database is available for future desktop reviews. This action will be automatically undertaken unless otherwise requested, where there is genuine justification.

Citation: Bat Eco Services (2024) Substation, Transformer Building, Ardnacrusha, Co. Clare - Derogation Licence Application Letter. Unpublished letter prepared for NPWS.

1st January 2025

RE: Application for a Derogation Licence to undertake works in Substation attached to the Transformer Building, Ardnacrusha, Co. Clare.

To whom it may concern:

On behalf of the client ESB Ardnacrusha, Bat Eco Services are applying for a derogation licence to undertake works on one section of a building (hereafter known as Substation attached to the main building known as the Transformer Building) that is used by a lesser horseshoe bat colony. This colony uses different sections of the Transformer Building which is located at the ESB Ardnacrusha Power Station, Ardnacrusha, Co. Clare.

A separation report (Bat Eco Services, 2024) is included in the email with this letter and this report provides all of the survey results from 2024 that determined the extent of the lesser horseshoe bat usage of the Transformer Building, including the Substation, which is the focus of this application.

Citation: Bat Eco Services (2024) Lesser horseshoe bat roost, Transformer Building, Ardnacrusha, Co. Clare. Supporting Information for Derogation Licence Application. Unpublished report prepared for ESB.

As a result of the surveys, it was recorded that the lesser horseshoe bat colony roosted in the Basement of the Transformer Building (Hibernation roost) while the principal Summer Roosts was in a room named the Transition Room as well as the Substation that is connected to the Transformer Building. This substation is an active substation and is under the management of ESB Networks. A large amount of bat droppings has accumulated on the equipment within the substation and therefore Bat Eco Services expressed concern about this situation and requested a meeting with ESB Networks on the best way forward to manage the bat usage. This meeting was undertaken on 13th August 2024. As a result of this discussion, ESB Networks decided that the substation is to be retired and a new substation will be constructed adjacent to the existing one. This will allow the current substation to remain available as a roosting site for the lesser horseshoe bat colony. However, there is a potential that the operation of the substation provides heat for the maternity colony and therefore a number of steps are required to ensure that the substation continues to be suitable for the maternity colony post-decommissioning. As a consequence, a consultation meeting was undertaken on 5th September 2024 with Mr David Lyons NPWS DCO and Mr Jamie Durrant, NPWS Conservation Ranger to explain the situation. Mr Lyons requested that a derogation licence was applied for to permit that works planned for the substation.

A preliminary programme of works was compiled by ESB Networks. Therefore, please find below an application for a derogation licence along with the proposed works, bat mitigation measures and monitoring programme.

If you require any further information, please do not hesitate to contact me.

Yours sincerely,
Dr Tina Aughney

1. Proposed Works

The Substation is a modern extension built onto the existing Transformer Building as shown on the aerial photograph below (Marked by green rectangle).

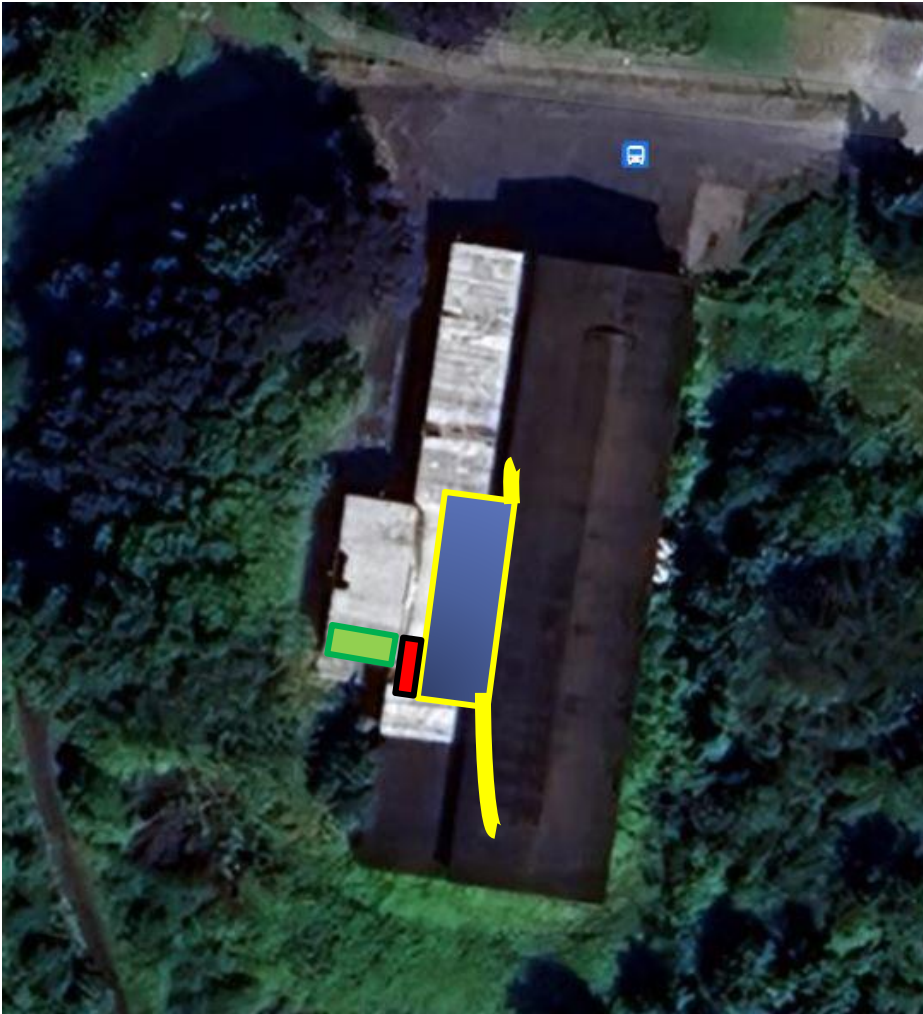


Figure 1: Transformer Building, Ardnacrusha, Co. Clare (approx. located of basement shown in blue and yellow). Transition Room (Red outlined in black) and Substation (Green) represented.

The Substation Room is two Rooms (Part C and Part D). External access for surveyors is via a steel doorway for each room (access only permitted under supervision of ESB Networks – Figure 2b, Blue arrows). The height of the room is approximately 5.2m at the point where the substation wall (Part C) is attached to the Transition Room and slopes to approximately 4m to the external wall of Part D of the substation. The majority of the active equipment of the substation is located in Part D (Plate 5).

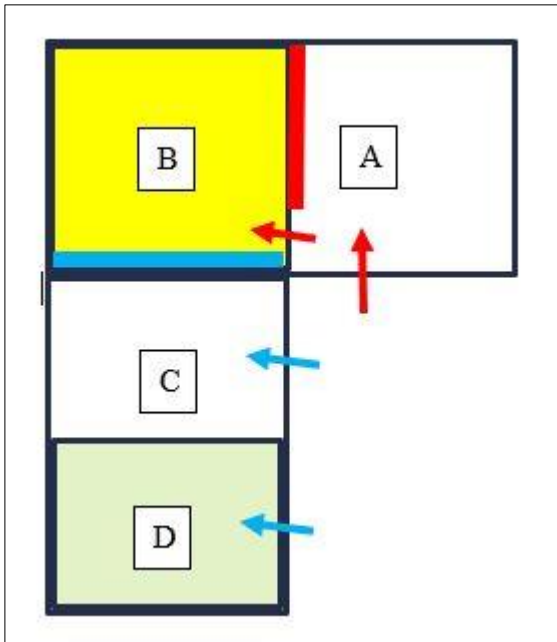


Figure 2a: Drawing of Surveyor access points into Transition Room (Red arrows) and Substation Room (Blue arrows).

The pattern of access by lesser horseshoe bats into the Transformer Building, as documented by the series of surveys completed since February 2024, is as follows (please see arrows on Figure 2b and please consult Bat Eco Services (2024) for more information):

- The bats enter the Transformer Building through gaps along the wall plate (facia/soffit area – external wall) of the Transition Room (Part A) via the Red Arrows shown on the figure below (Figure 2b).
- To access the Basement, the bats fly through a “post box” entrance at the rafters/wall plate following the Purple arrows in Part A of Transition Room. This brings the bats into the main space of the transformer building.
- To access the Basement, the bats fly from the main space of the Transformer Building, down the steps to the basement and into the basement via an open door.
- To access the Substation Room, the bats fly from the Transition Room and fly through gaps along the wall plate via the Blue Arrows from Transition Room (Part B) in Substation Room (Part C).
- To exit the Transformer Building, the bats return along the same routes as described above for accessing the various spaces named.

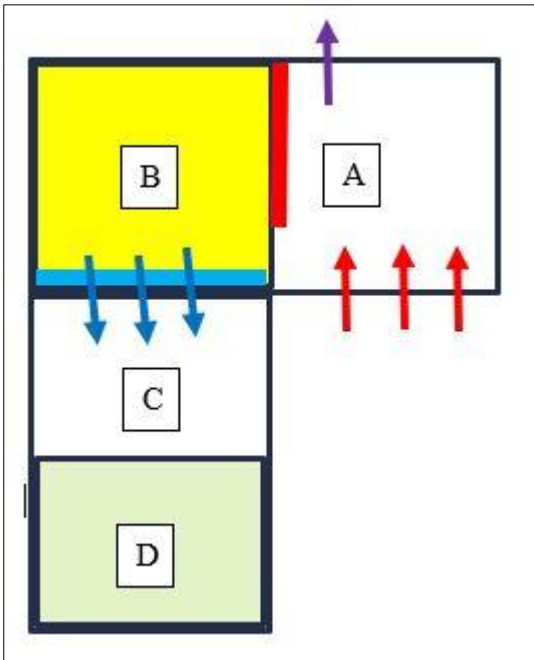


Figure 2b: Drawing of Bat access points into Transition Room (Red arrows), Substation (Blue arrows) and main space of the Transformer Building (Purple arrow).



Plate 1: The steel door entrance to Substation Room (Part C – marked by Green box).



Plate 2: Rafter space in Part C, Substation Room (Lesser horseshoe bats visible – highlighted in yellow). Please note that how high the ceiling space is above the wall plate (i.e. the top of the white painted wall).



Plate 3: Bat droppings on substation floor (Part D).



Plate 4: Extent of old bat droppings present on the substation floor (Part C).



Plate 5: Internal wall in between the two rooms (Part C and Part D) of Substation Room. (Yellow Circle). Please note that how high the ceiling space and the internal white wall (wall between Part C and Part D of the Substation). The steel structure in the right-hand corner is 1.8m high and protects the active equipment of the substation.

1.1 Retirement of Substation

In order for the Substation to be retired, the following works are proposed by ESB networks (Source: RAMS R1.0 dated 22.10.2024: Retirement and removal of HV Equipment within Ardnacrausha Compound):

Cubicles and equipment will be cleaned by ENVA prior to removal.

2 – Remove outside safety bars to allow for Lifting equipment access

3 – Removal of Transformer & Panel

4 – Removal of high tension switch

5 – Bat excrement removed and cleaned by ENVA

Please note* Cranage will be carried out by O'Carroll Haulage & Crane Hire Ltd.

These works will be undertaken under supervision of Bat Eco Services along with continuous monitoring as set out in Section 2. It is recommended that these works are completed in the months of January to April or in September to December 2025, avoiding the maternity months of May to August. This will ensure that the lesser horseshoe bat colony is not disturbed.

Prior to the above works being undertaken Bat Eco Services will undertake the following steps:

- An internal inspection of the Substation will be undertaken prior to the start date of proposed works. If there are no bats present in the substation, the entrance point between the substation and the Transition room will be blocked to prevent lesser horseshoe bat usage of the substation during the proposed works.
- Inside the Transition Room, the entrance point between this room and the Substation will be blocked using hessian material attached to a frame to seal off the gaps.
- If lesser horseshoe bats are present in the substation, then the hessian material frame will be put into position but will not be closed until the bats have vacated the substation. This will be undertaken post-dusk survey and once all bats have emerged, the hessian material will be closed to prevent re-entry into the substation for the duration of the proposed works.

1.2 Bat Loft in Retired Substation

In order to facilitate similar conditions for the bat colony, the following works are proposed to be undertaken in relation to providing a suitable roosting area for the Lesser horseshoe bat colony. This applies to both rooms of the substation – Part C and Part D.

- False Ceiling to create a Loft Space

Once the equipment is removed, install a false ceiling across the entire space of the two rooms of the substation. This false ceiling should be constructed above the height of the lintel of the steel door entrance between the internal wall between Part C and Part D to provide a confined space for the maternity colony which will be darker than the existing space and a reduce volume that will ensure solar radiation will heat the loft space for the maternity colony.

- Construction false ceiling with a minimum of 6 inch joists and cover with a layer of ¾ inch ply wood screwed in to place (just in case maintenance works are required in the future). Add an additional layer of ¾ inch marine ply (more resistant to urine staining).
- Underneath the first layer of plywood and between the joists, fix 100mm insulation board to help retain the solar heat in the new loft space.

This should be constructed to ensure it is strong enough to allow human access to undertake monitoring and cleaning of the loft spaces. The floors of the loft spaces should be covered with an additional layer of marine ply to increase the lifetime of the floor against accumulating bat droppings and urine.

Insert a trapdoor (750mm by 500mm) in the corner of the false ceiling (in both Part C and Part D along the wall opposite the entrance steel doors – therefore two trapdoors) to allow bats to fly to the ground floor space in each of Part C and Part D and also to allow surveyor access for monitoring. A ladder will remain in one of the rooms (on the ground – not in place) to allow access to the loft spaces for monitoring.

NOTE: A temperature data logger is currently installed in Part D, Substation to record the hourly temperature of the active operation of the substation. Once the loft spaces are created, temperature data loggers will be installed in the ground floor room of Part C and Part D and the loft space of Part C and Part D. These recordings will be compared with the temperature data currently being recorded to determine if the temperature of the loft spaces are reaching temperatures to support a healthy maternity colony. There is an additional temperature data logger in the Transition Room and recordings of this will also be used to compare to current recordings and future recordings post work.

- Steel Doors (Part C and Part D, Substation)

Temporarily block the louvre windows of the steel doors to reduce potential air flow, and therefore loss of heat. A cover using plywood will suffice and the temperature data loggers will assist to determine if these should remain permanently in place or to be removed post-monitoring. Additional tweaks maybe required but these will be discussed with ESB Networks and NPWS.

- Hessian Material

Once the works for both removal of the equipment and the construction of bat lofts are completed, the hessian material will be removed to allow individuals of the colony to re-access the substation rooms.

2. Monitoring

The following monitoring is in place:

- Temperature Data Logger

A TinyTag data logger was installed in Part D, Substation on 20th August 2024. This is set to recorded hourly and is currently in place. Additional units are also located in the Basement and Transition Room of the Transformer Building.

- Static Surveillance

A Wildlife Acoustic Mini B Full Spectrum bat detector was installed in Part D, Substation on 6th December 2024. This is set to record 30 minutes before sunset to 30 minutes after sunrise and is currently in place and will be collected mid-January 2025.

- Internal Counts

The December internal count was undertaken on 3rd December 2024 (78 bats present in total, with only 1 individual recorded in the Substation – Please see Bat Eco Services (2024) for more details). It is considered that the substation rooms are used by a much smaller number of bats outside the maternity season and this is supported by internal counts completed in 2024. A higher number of bats was recorded in the Transition Room compared to the Substation during the summer months.

SOURCE: Bat Eco Services (2024)

Table 4: Visual counts of Lesser horseshoe bats in the basement, transition room and substation of the Transformer Building, Ardnacrusha, Co. Clare.

N/A – these rooms were not accessed during the listed dates.

| No. | Date | Observed LHB in basement | Observed LHB in transition room | Observed LHB in substation rooms | Total |
|-----|------------|--------------------------|---------------------------------|----------------------------------|-----------------|
| 1 | 16/02/2024 | 7 | N/A | N/A | 7 |
| 2 | 04/03/2024 | 46 | N/A | N/A | 46 |
| 3 | 06/03/2024 | 6 | N/A | N/A | 6 |
| 4 | 25/03/2024 | 1 | N/A | N/A | 1 |
| 5 | 09/04/2024 | 18 | N/A | N/A | 18 |
| 6 | 18/4/2024 | 0 | N/A | N/A | 0 |
| 7 | 3/5/2024 | 6 | 7 | N/A | 13 |
| 8 | 10/5/2024 | 0 | 73 | 66 (both Room 1 & Room 2) | 139 |
| 9 | 4/7/2024 | 1 | 8 | Not accessible | 9 |
| 10 | 14/8/2024 | 0 | 59 | Room 1 accessible only - 13 | 72 [^] |
| 11 | 20/8/2024 | 0 | 72 | Room 1 – 15, Room 2 - 45 | 132 |
| 12 | 3/12/2024 | 59 | 18 | 1 | 78 |

Note [^]: incomplete count – Substation Room 2 was not accessible on this date.

It is aimed to undertaken monthly counts of the Substation, Transition Room and Basement in January, February and March 2025.

This data will provide monitoring information to ensure the protection of the lesser horseshoe bat colony during proposed works to the Substation.

3. Derogation Licence Application

A derogation licence is required to be in place prior to proposed removal of the substation equipment and works to install a new bat loft. Once this is in place, Bat Eco Services will liaise with the contractor to plan supervision of the works.

Derogation Licence

A NPWS Derogation Licence is required for proposed works at the Substation as it may result in the temporary disturbance of a lesser horseshoe bat colony. However these works will be undertaken outside the main maternity season and access to the Transition Room and Basement will continue throughout the works and therefore there will be no disturbance to bat usage of other roosting spaces..

The following two questions are taken from the derogation licence application in order to provide information requested to allow NPWS to undertake an assessment of the licence application.

10. Please tick which reason below explains How this Application Qualifies under Regulation 54(2)(A-E) of the European Communities (Birds and Natural Habitats) Regulations:

| | | |
|-----------|---|-------------------------------------|
| a. | In the interests of protecting wild flora and fauna and conserving natural habitats | <input type="checkbox"/> |
| b. | To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property | <input type="checkbox"/> |
| c. | In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment. EXPLANATION The proposed works on the Substation are being undertaken due to the build-up of bat droppings and urine on active (Live) ESB equipment. This poses a Health & Safety threat. Therefore it is proposed to retire the substation and allow it to remain as a space available to the lesser horseshoe bat colony roosting in the Transformer Building. The proposed works will not result in the exclusion or the loss of the building as a roosting site. Additional proposed works (e.g. bat loft) will ensure the long-term use of the structure and therefore the long-term existence of the structure as a bat space for the local lesser horseshoe bat colony. An Derogation Licence is being sought as a precaution due to the importance of the site and to ensure that regional NPWS staff are aware of the actions being undertaken and to allow information exchange and collaboration. | <input checked="" type="checkbox"/> |
| d. | For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including artificial propagation of plants | <input type="checkbox"/> |
| e. | To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule | <input type="checkbox"/> |

The following table requires detailed information, which this bat survey report provides. Some of this information is presented as part of the table below while other sections within the report (as directed) are required to be consulted.

11. Report Checklist: Please append a detailed report to support this application and ensure that it contains the following information:

| | | |
|--|--|---|
| 11.1 | Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations. | ☒ |
| <p>Objectives:</p> <ul style="list-style-type: none"> a) Retire existing substation and remove equipment b) Construct a bat loft c) Undertake monitoring to determine if similar conditions occur post-retirement of the substation (i.e. ensure that similar temperatures occur in the bat loft to those of the current active substation). <p>Explanation:</p> <p>Substation, Transformer Building – recorded as one of the spaces used by the lesser horseshoe bat colony recorded roosting in the Transformer Building.</p> <p>Due to the number of lesser horseshoe bats present, a derogation licence is being applied for as a precaution.</p> <p>The proposed works will be undertaken in a manner to minimise disturbance to the lesser horseshoe bat colony and proposed works will result in safe guarding the substation as a roosting space for the bat colony. Please see previous sections for more details relating to proposed measures for more detail.</p> <p>The proposed works of the substation will reduce a Health & Safety issues for ESB Networks and the retirement of the substation as a bat roost will ensure the space is available, in the long-term, for the lesser horseshoe bat colony.</p> <p>Alternative Solutions Considered:</p> <p>a) Alternatives – leave Substation in use</p> <p>It was discussed if the substation could remain as an active substation. If this was case, the equipment would require regular cleaning of bat droppings and urine. To undertake such actions was considered to be too risky by ESB Networks and is considered to be a fire hazard.</p> <p>It was also discussed whether the colony could be prevented from using the substation and this was considered by Bat Eco Services as disadvantageous to the long-term favourable conservation status of the local bat population due to the fact that this is a colony of SAC standard)>100 individuals in summer and >50 individuals in winter) in an area of South Clare / North Limerick where a colony of this size was previously unknown.</p> <p>Lesser horseshoe bats require a specific volume of space, depending on the number of individuals in the colony, during the maternity season. Work completed by the Vincent Wildlife Trust (VWT) reported that the internal volume of successful roosts examined ranged from 40m³ to 398m³ (20 – 409 bats) (Schofield, 2008). The available volume of the substation rooms is approximately 38m³ and a similar volume for the Transition Room. Therefore neither spaces provide the minimum space as per Schofield (2008) but provide a suitable volume when combined together. Therefore it was recommended that the substation remains accessible for the lesser horseshoe bat colony.</p> <p>b) Alternatives – provide a new bat house</p> <p>A separate new bat house was considered. However, in order for such to be planned, constructed as well as (according to Marnell <i>et al.</i>, 2022) a minimum of 2 years of monitoring to determine if an alternative bat house was suitable for a maternity colony of lesser</p> | | |

| | | |
|------|---|---|
| | <p>horseshoe bats. It is likely that a minimum of 3 years would be required before the substation could be retired. As the Health & Safety risk is an active one, a waiting this period of time was not deemed acceptable by ESB Networks.</p> | |
| 11.2 | <p>Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.</p> | ☒ |
| | <p>The proposed works will be undertaken outside the maternity season and at a time when surveys have shown minimal use of the substation by individuals of the lesser horseshoe bat colony. Therefore it is considered that there will be no disturbance of the lesser horseshoe bat colony. It is deemed that the works will not to be detrimental to the maintenance of the lesser horseshoe population. Indeed, the proposed works will ensure the long-term stability of the local lesser horseshoe bat population in the local area.</p> <p>This is particularly important for this site as there is a paucity of knowledge of lesser horseshoe bat roosts in this area (i.e. South Clare / North Limerick). The recording of this lesser horseshoe bat roost was a new find and has been added to the NPWS Lesser horseshoe bat database for annual monitoring. The recording of this roost has also increased the distribution range of the species for County Clare.</p> | |
| 11.3 | <p>Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.</p> | ☒ |
| | <p>Bat mitigation measures are provided, in detailed, in Section 1. In summary, it is proposed to undertaken these works outside the main maternity season:</p> <ul style="list-style-type: none"> - Retirement of existing Substation equipment (including removal); - Construction of bat lofts; - Monitoring programme. <p>The bat mitigation measures follow Marnell et al. 2022 to ensure that conservation of the bats are of paramount importance. The design of the bat mitigation measures follow Schofield (2008) the primary handbook for the renovation of buildings as bat houses for this species of bat. This handbook has been used by Bat Eco Services in the renovation of 10 successful bat houses for lesser horseshoe bat to-date.</p> <p>Scientific paper published by the principal bat specialist is also attached to the email application and this provides details of one of the first bat houses that she consulted on and monitored:</p> <p>Aughney, T., Stephens, R. & Roche, N. (2021) Monthly roost counts of Lesser Horseshoe Bats (<i>Rhinolophus hipposideros</i> (Bechstein)) in a purpose-renovated building in Co. Galway. Irish Naturalists' Journal 37 (2):137-141.</p> <p>This paper provides evidence of how improving a bat house for lesser horseshoe bats can greatly increase the colony size utilising the structure. Garryland Lodge providing roosting for 8-16 lesser horseshoe bats in the years prior to the renovation of the building to >200 adults in the counts reported in the paper. In the most recent counts undertaken by NPWS Regional staff, these numbers have increased further (2024 – 304 bats, Source: NPWS Lesser Horseshoe Bat Database).</p> <p>Bat Eco Services, through a number of derogation licence reports, have provided evidence of successful renovation works of buildings as a bat roosts and the construction of new bat houses. Two such projects, for reference, were completed in 2024 and are as follows (reports issued to NPWS Wildlife Licencing in December 2024)</p> <ol style="list-style-type: none"> 1. Main Bat House & New Bat House, Waterville, Co. Kerry (DER-BAT-2024-177) 2. Old Street Bat House, Co. Galway (DER-BAT-2024-181) | |

| | | |
|-------------|--|-------------------------------------|
| 11.4 | As much information as possible to allow a decision to be made on this application. | <input checked="" type="checkbox"/> |
| | <p>The proposed works will ensure the conservation and protection of the bats during and post-construction.</p> <p>The bat mitigation measures follow Marnell <i>et al.</i> (2022) to ensure that conservation of the bats are of paramount importance. The design of the bat mitigation measures follow Schofield (2008) the primary handbook for the renovation of buildings as bat houses for this species of bat. This handbook has been used by Bat Eco Services in the renovation of 10 successful bat houses for lesser horseshoe bats to-date.</p> | |