Preliminary Environmental Information Report

Appendix 8.9 Baseline Report – Bat Roost Survey

LLK1-ARU-REP-ENV-000008_AP8.9
Version 0.0
January 2026

Contents

1 Introduction

1.1 Project description

1.1.1 LionLink is a proposed electricity interconnector between Great Britain and the Netherlands that would supply up to 2 gigawatts (GW) of electricity and would connect to Dutch offshore wind via an offshore converter platform in Dutch waters (hereafter the Project).

1.1.2 The Proposed Scheme (defined as the part of the Project within the British jurisdiction) would involve the construction of the proposed Converter Station and the installation of offshore and onshore proposed Underground High Voltage Direct Current Cables (HVDC) to the proposed Converter Station and the proposed Underground High Voltage Alternating Current Cables (HVAC) between the proposed Converter Station and the Kiln Lane Substation.

1.2 Overview of survey approach

1.2.1 An Ecology Survey Strategy (ESS) was produced in March 2023, which explained the approach for ecological survey to inform the baseline for the Proposed Onshore Scheme. The ESS set out the rationale and methods for how and when relevant ecological features would be identified to inform the design process. The aim of the ESS was to ensure that sufficient baseline data would be available to embed the mitigation hierarchy within the design, i.e. to avoid adverse impacts to valuable ecological features wherever possible, and to minimise any unavoidable adverse impacts.

1.2.2 Initial baseline ecological surveys commenced in 2023 on the basis of the Proposed Onshore Scheme Scoping Boundary (shown in **Figure 1-2** of the **EIA Scoping Report (Ref 1)**, which included the proposed Landfall Site at Walberswick and the Landfall Site at Southwold. Subsequently, the Draft Order Limits (DOL) has been fixed in late 2024, reflecting design development and representing a substantial reduction on the Proposed Onshore Scheme Scoping Boundary, including the discounting of the Landfall Site at Southwold and the associated proposed Underground Cable Corridor (refer to **Chapter 3 Alternatives and Design Evolution**).

1.2.3 The initial stage of the ESS was to undertake Preliminary Ecological Appraisal (PEA) of all accessible areas within the Proposed Onshore Scheme Scoping Boundary, comprising a desk study for existing biological records and a field survey. PEA of most of the boundary was completed in 2023, with additional PEA surveys in 2024 to fill data gaps for previously inaccessible land. PEA field survey comprised:

a. Mapping of the habitat types present following a published and recognised habitat classification that is appropriate for the location;

b. Scoring the condition of habitat types present in accordance with Defra Metric criteria to inform BNG assessment;
c. An assessment of the possible presence of protected or priority species, and (where relevant) an assessment of the likely importance of habitat features present for such species;
d. Mapping of any stands of non-native invasive plant species; and
e. Recording of any incidental sightings of priority or protected species, or field signs of such species.

1.2.4 In relation to bat roosts, PEA surveys included the initial identification of trees and built structures with potential suitability to support roosting bats. Such features that were reasonably likely to support a roost based on their age/size/condition were mapped. Where anecdotal evidence of roosting bats was provided by landowners, these features were also recorded.

1.2.5 Siting and routeing appraisals and other design development work was progressed in parallel with the PEA surveys in 2023, guided by emerging survey results. This design work refined the likely boundaries of the proposed Landfall Site, the proposed Underground HVDC and HVAC Cable Corridors and associated temporary works.

1.2.6 The scope of the bat roost identification and characterisation surveys for 2024 was based upon the emerging corridor for the Proposed Onshore Scheme in late 2023, which still included the discounted Landfall Site at Southwold and the proposed Landfall Site at Walberswick, forming the study areas for the surveys. The surveys focussed upon any features with bat roosting potential that occurred within the discounted Landfall Site Option at Southwold and the proposed Converter Station Site to the east of Saxmundham. No features with bat roosting potential (trees or buildings) occur within the proposed Landfall Site at Walberswick. Surveys were undertaken to identify any bat roosts that occurred within these areas so that this information could shape the design process to avoid impacts to bat roosts wherever possible. These surveys are complementary to the Advanced Bat Surveys undertaken along the route of the proposed Underground Cable Corridor.

1.3 Purpose and scope of this report

1.3.1 The purpose of this report is to present the results of the bat roost identification surveys undertaken for the Proposed Onshore Scheme at the discounted Landfall Site at Southwold and the proposed Converter Station Site. The objectives of this report are to:

a. Undertake a review of bat records within 2km of the Proposed Onshore Scheme;
b. Undertake a search for relevant statutory and non-statutory sites, ancient woodland and notable/veteran trees for bats;
c. Undertake a review of bat mitigation licences issued for sites within 2km of the Proposed Onshore Scheme;

d. Determine the presence, or likely absence, of bat roosts within the areas of potential permanent above-ground infrastructure (the discounted Landfall Site at Southwold and the proposed Converter Station Site); and
e. Provide sufficient information to inform an assessment of potential impacts to roosting bats and the local bat assemblage as a result of the Proposed Onshore Scheme, when combined with the wider suite of bat surveys.

1.4 Legislation

1.4.1 A framework of international, national and local legislation and planning policy guidance exists to protect and conserve wildlife and habitats and is set out within **Chapter 4 Legislation and Policy Overview**, **Appendix 4.1 Legislation and Policy Register**.

1.4.2 Legislation relevant to and discussed within this report includes the following:

a. The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations'), as amended (Ref 2);
b. Wildlife and Countryside Act 1981 (Ref 3); and
c. Natural Environment and Rural Communities (NERC) Act 2006 (Ref 4).

1.4.3 All native bat species and the sites that they use for breeding or resting are afforded protection through the provisions within Schedule 5 of the Wildlife and Countryside Act 1981 and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. It is therefore an offence, without a licence from Natural England, to intentionally or recklessly kill or injure bats; to disturb, obstruct, damage or destroy their roosts (including when those roosts are empty) or to take, possess or trade in bats and their parts (alive or dead).

1.5 Status of bats at national level

1.5.1 There are 17 species of bat that are known to breed in the UK. Bat populations are known to have decreased significantly over the last century, with this largely attributed to threats associated with development. These threats include direct impacts on roosts from building and development work requiring tree removal and the demolition of buildings and other structures, in addition to severance of important commuting corridors by roads, other linear infrastructure and vegetation removal.

1.5.2 Species of principal importance (SPI) for the purpose of conserving biodiversity in England are listed under the provisions of Section 41 of the NERC Act 2006 (Ref 3). The following bat species are classified as 'UK Priority Species' requiring conservation action within the UK:

a. Barbastelle (*Barbastella barbastellus*)
b. Bechstein's bat (*Myotis bechsteinii*)
c. Brown long-eared bat (*Plecotus auritus*)
d. Greater horseshoe bat (*Rhinolophus ferrumequinum*)
e. Lesser horseshoe bat (*Rhinolophus hipposideros*)

f. Noctule (*Nyctalus noctula*)
g. Soprano pipistrelle (*Pipistrellus pygmaeus*)

1.5.3 Barbastelle, Bechstein's bat, greater horseshoe bat and lesser horseshoe bat are amongst the UK's rarest mammals and are also listed on Annex II of the EC Habitats and Species Directive 1992 (Ref 5). Bechstein's bat and barbastelle are also listed as 'near threatened' on the IUCN global red list (Ref 6). While greater and lesser horseshoe bat are listed as 'least concern' globally they are 'near threatened' on the European red list.

1.6 Status of bats at county level

1.6.1 A total of 10 bat species have been recorded in Suffolk within the last 10 years. With reference to the Bat Distribution Atlas 1983-2016 (Ref 7) produced by the Suffolk Bat Group (SBG), and Suffolk's Priority Species list (Ref 8) the following is noted on the distribution and status of bat species within the county:

Common

a. Common pipistrelle (*Pipistrellus pipistrellus*): A common species in Suffolk, as it is elsewhere in the UK, recorded widely across the county;
b. Brown long-eared bat: A common species across the county in Suffolk. Brown long-eared bats feed mainly in woodland and often roost in buildings, such as open lofts in older buildings and barns;
c. Natterer's Bat (*Myotis nattereri*): This species is common across Suffolk however the number of recordings is less concentrated than the common pipistrelle;
d. Noctule: This species is common throughout Suffolk with a particularly large number of records reported in the north-west of the county;
e. Serotine (*Eptesicus serotinus*): Within Suffolk this species is considered common due to the number of records reported across the county; and
f. Soprano pipistrelle: Widespread across the county, however there is a clear absence of records towards the west of the county's centre.

Uncommon

a. Leisler's bat (*Nyctalus leisleri*): The species is recorded in clusters in the north west of the county with a few records spread across the south of the county;
b. Barbastelle: Multiple records across the county with wide areas containing no record of barbastelle. The number of records is significantly less than for the common bat species but still cover a wide range of the county; and
c. Daubenton's bat (*Myotis daubentonii*): A small range of records for this species with species density at its highest in the north-west and south of the county.

Rare

a. Whiskered (*Myotis mystacinus*): This species is one of the rarest in Suffolk, with two records in the north and north east of the county;

b. Nathusius' pipistrelle (*Pipistrellus nathusii*): The records provided for this species are spread across different locations within the county and is largely absent around the south west of the county;
c. Lesser horseshoe bat: This species is the rarest in Suffolk, with one record from the north east of the county; and
d. Brandts (*Myotis brandtii*): No records in the last 20 years.

1.7 Bat species ecology

1.7.1 All bat species in the UK are nocturnal, emerging from their roosts at dusk. Bats have been found to roost in a number of places, including trees, barns, buildings (within lofts, roof structures, basements, cladding and cavity walls), bridges and underground sites. Their preferred roosting location depends on a number of factors, such as species, gender, breeding status and time of year.

1.7.2 Bats require different conditions when hibernating over winter compared to summer roosts; summer sites include those used for maternity where female bats give birth and raise their young, satellite roosts, which are alternative roosts found in proximity to the maternity colony for smaller numbers of bats, and day roosts where individual bats or small groups of males may be found. Requirements vary according to species, with buildings, other structures (such as bridges) and trees being utilised for roosting.

1.7.3 Bats utilise an array of habitats as foraging areas, including riparian habitats, woodland and grassland, feeding on a variety of insect species. Foraging areas and insect prey differ between each species of bat, with different species adapted for hunting in a variety of ways. Many bat species are also known to use multiple different habitat types to forage, highlighting the importance of landscape scale assessment to ensure the persistence of a mosaic of habitats across important foraging areas.

1.7.4 In order to move between their roosts and foraging grounds, bats commonly use linear features as commuting corridors. Hedgerow and treelines, in addition to small patches of woodland, rivers and streams, provide protection and cover from predators and enable bats to emerge and disperse earlier. Where these features are comprised of diverse plant assemblages, suitable to support insect populations, they may be used for opportunistic foraging, with bats feeding on the way to their main foraging areas.

1.7.5 Relevant background information on species specific ecology has been used to inform surveys and assessments, including their distribution, range, suitable habitats, life cycle and threats. For example, the core sustenance zone of a species refers to the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost.

2 Methodology

2.1 Desk study

2.1.1 A detailed biological records search was requested from the Suffolk Biodiversity Information Services (SBIS) in January 2023 to inform the design and assessment of the Proposed Onshore Scheme. This included a search for records of bats from within a 2km radius of the Proposed Onshore Scheme Scoping Boundary. An updated data search was conducted in April 2025 for a 2km search area of the Proposed Onshore Scheme Scoping Boundary, limited to the Walberswick option only (i.e. excluding the discounted Southwold option).

2.1.2 Bat records received that are over ten years old were omitted as they may not accurately represent the current status of the bat population in proximity to the Proposed Onshore Scheme, unless they were related to a significant roost type such as a maternity or hibernation roost and deemed relevant.

2.1.3 A search for the presence of statutory designated sites with habitats that may support bats, or where bats are listed as a qualifying feature, was carried out for the Proposed Onshore Scheme which included nationally important sites up to 5km from the Proposed Onshore Scheme Scoping Boundary and extended out to 30km for Special Areas of Conservation (SAC). The sites were identified using sources that included the Multi-Agency Geographic Information for the Countryside (MAGIC) (Ref 9) web database and the Joint Nature Conservation Committee (JNCC) (Ref 10) website.

2.1.4 The SBIS biological records search also included a request for non-statutory sites within 2km of the Proposed Onshore Scheme Scoping Boundary. The non-statutory site citations were reviewed for any known bat roosts, or habitats with the potential to support roosting bats such as woodland, notable trees, buildings or other structures.

2.1.5 A search was also carried out for any ancient woodlands or ancient/veteran trees within 2km of the Proposed Onshore Scheme Scoping Boundary, using the MAGIC web database and results from the SBIS biological records search and the Woodland Trust Ancient Tree Inventory (Ref 11).

2.1.6 As part of this desk study, data collected within the surveys areas during the preceding Preliminary Ecological Appraisal (PEA) was reviewed to identify any trees which were identified as being potentially suitable for roosting bats. Aerial imagery was also reviewed as part of the desk study to ascertain potential connectivity to other potential roosts within the study area and wider landscape.

2.1.7 The MAGIC web database was also used to identify any granted Natural England bat mitigation licenses within a 2km radius of the Proposed Onshore Scheme. Information pertaining to species and the type of roosts affected (e.g., non-breeding or breeding sites) was also reviewed.

2.2 Field surveys

Overview

2.2.1 The desk study and PEA undertaken in 2023 identified trees within the survey areas which may have the potential to support roosting bats. As a result, further surveys comprising ground-level tree assessments (GLTAs), potential roost feature (PRF) inspection surveys, and presence/likely absence surveys were undertaken between May and September 2024 to identify bat roosts within the survey areas.

2.2.2 All surveys were led by experienced ecologists, with each survey lead holding a Natural England Bat Class Licence (Level 2 CL18 as a minimum).

2.2.3 All surveys were undertaken in accordance with:

a. Bat Surveys for Professional Ecologists: Good Practice Guidelines (Ref 12); and
b. The CIEEM competencies for bat surveys (Ref 13).

2.2.4 The surveys were also informed by:

a. The Bat Workers' Manual (Ref 14);
b. The Bat Tree Habitat Key (Ref 15); and
c. Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology (Ref 16).

Ground level tree assessment

2.2.5 In May 2024, targeted GLTAs were undertaken to identify any trees within the survey areas with PRFs with the potential to support roosting bats. Trees were surveyed from ground level to identify PRFs using binoculars, endoscopes and high-powered torches, where appropriate, to obtain an initial judgement of the suitability of each PRF, whilst also considering connectivity to the wider environment and position in the context of the landscape.

2.2.6 Each tree was assigned a classification according to the highest suitability PRF, reflecting the overall potential to support roosting bats as outlined in **Table 2.1** below (adapted from Bat Surveys for Professional Ecologists: Good Practice Guidelines (Ref 12)).

Table 2.1: Guidelines for categorising potential suitability of PRFs for bats

Suitability	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to the size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

PRF inspection surveys

2.2.7 Following the targeted GLTA surveys, climbing/aerial PRF inspection surveys were undertaken between June and September 2024 of trees having been identified as PRF-M, as outlined in **Table 2.2** below.

Table 2.2: Survey approach relevant to tree surveys (adapted from Bat Surveys for Professional Ecologists: Good Practice Guidelines)

Suitability	Description
PRF-I	No further surveys required (Ref 17)
PRF-M	Three visits (Ref 18) between May and September(Ref 19), with at least two in the period May to August. Where access is not possible for PRF inspection surveys, these could be done via emergence surveys supported by night vision aids (NVAs).

2.2.8 PRFs were inspected with the use of an endoscope and handheld torches to record the dimensions of internal cavities, internal conditions, and the presence of competitors, in addition to noting the presence of bats or evidence of a roost (i.e., droppings, polished surfaces, staining or feeding remains).

2.2.9 During the first PRF inspection survey, PRFs were reclassified where appropriate as to their roosting potential, in accordance with the classifications outlined in **Table 2.1**, and each tree assigned a final roost suitability classification. Where a tree was identified to be of negligible (no value) or low roosting potential (PRF-I) upon closer inspection, the tree was omitted from the ongoing survey scope, aligning with **Table 2.1**. The potential for a tree to support roosting bats was re-assessed as follows:

a. Upgraded: PRF inspection surveys allowed for a better assessment and revealed that features were more suitable than originally thought from the GLTA;
b. Downgraded: PRF inspection surveys allowed for reducing the potential of PRFs or even ruling them out altogether as having low or negligible roosting potential;
c. Confirmed assessment: the correct classification for each PRF was attributed during the GLTA; and
d. Confirmed roost: roosting bats, or where evidence of current use was identified, for example through the presence of bats themselves, fresh droppings, or a combination of fresh oil and fresh urine staining.

Presence/likely absence surveys

2.2.10 Trees classified as PRF-M which could not be subject to PRF inspection surveys due to health and safety concerns (presence of deadwood precluding safe climbing), or the presence of nesting birds, were subject to presence/likely absence surveys instead of PRF inspection surveys. The frequency and timing of presence/likely absence surveys align with the approach detailed in **Table 2.2.**

2.2.11 Presence/likely absence surveys commenced a minimum of 15 minutes prior to sunset and ended a minimum of 90 minutes after sunset. Surveyors were positioned to ensure all aspects with suitable PRFs could be observed during the surveys and any bats emerging from or entering the PRFs would be identified.

2.2.12 Cameras fitted with infrared lights were utilised in conjunction with a surveyor. All surveyors were equipped with BatLogger M (Elekon) real-time full spectrum detectors, which display the call frequency, and record bat calls. The detectors were set to record with an automatic trigger at a high sensitivity, enabling effective detection of UK bat species.

2.2.13 All bats observed or detected were recorded, including (where possible) the number of bats, species, and information regarding behaviour (e.g., foraging or commuting) and direction of flight.

2.2.14 The following survey conditions were also recorded:

a. Sunset, sunrise, start and finish times;
b. Air temperature at the survey start and finish;
c. Cloud cover;
d. Wind speed;
e. Precipitation; and
f. Any changes in weather conditions throughout the survey period.

2.2.15 All surveys were planned to be carried out in optimal conditions; this included a sunset and pre-sunrise temperature of 10°C or above, no rain or strong winds. Where conditions were sub-optimal or deteriorated during a survey for a period of more than half an hour, the survey lead made a judgement as to whether the survey should continue based on how likely the conditions would be to result in delayed or aborted roost emergence.

Bat call analysis

2.2.16 Analysis of bat calls recorded on the real-time full spectrum detectors used during the presence/likely absence surveys was undertaken using Wildlife Acoustics' Kaleidoscope software (Ref 20) to aid and confirm the identification of bats to species or genus level by suitably qualified ecologists. All relevant sound analysis was subject to a rigorous quality assurance (QA) process by a senior technical bat expert.

2.2.17 Calls from bats belonging to the genus *Myotis* are known to produce very similar sounding calls, which are difficult to distinguish in the field, and when using bat call analysis software. For the purposes of this assessment the following species have been grouped and have been reported as *Myotis sp*. These comprise:

a. Alcathoe bat;
b. Bechstein's bat;
c. Brandt's bat;
d. Daubenton's bat;
e. Natterer's bat; and

f. Whiskered bat.

2.2.18 This grouping is required to lower the probability of misidentification of species recorded during surveys. However, it is not expected to significantly impact the results of this assessment.

2.2.19 Common pipistrelle and soprano pipistrelle calls, which look and sound similar, have peak frequencies only 10kHz apart. These calls often overlap due to call plasticity, allowing bats to adapt their calls to the habitats they are in. Therefore, to avoid misidentification of species, the label *Pipistrellus sp*. has been used for any calls falling within the range of peak frequency where call overlap is known to occur between 49kHz and 51kHz.

Bat video analysis

2.2.20 Presence/likely absence survey video footage recorded on NVAs was analysed using media players which include a function to alter the contrast, saturation, and colour of the video footage, in addition to having a slow-motion play-back function. These functions can be used to manipulate the footage to aid identification of bats (to species level where possible). Timestamps were also viewed on each recording where available and cross referenced with audio recordings where required. Where analysis of the footage identified a roost or a roost was suspected, this video footage was subject to QA by a senior technical bat expert, which included corresponding analysis of the sound recordings (see also bat call analysis, above).

2.3 Assumptions and limitations

2.3.1 Three trees were deemed unsafe to climb due to high quantities of deadwood, or active birds' nests (T11872, T11808 and T11832). These trees were surveyed using presence/likely absence surveys as an alternative method to the climber-based PRF inspections. The emergence surveys were undertaken within the optimal season and in suitable weather conditions. As a result, the trees were subject to reasonable survey effort in line with best practice guidance and the omission of PRF inspections does not represent a constraint to the assessment.

3 Results

3.1 Desk study

Designated sites

3.1.1 No internationally important designated SACs with bats listed as a qualifying feature are located within the 30km search area.

3.1.2 A total of 17 statutory sites of national importance are located within the 5km search area, including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR), all of which contain habitats with the potential to support bats. The highest quality habitats identified within the statutory sites include semi-natural and wet woodlands, wetland (saltmarsh, fens, ponds, reedbeds, saltmarsh and lagoons), heathland and a range of species rich grasslands, all of which provide important roosting, foraging and commuting opportunities for the local bat assemblage.

3.1.3 A total of 35 non-statutory designated County Wildlife Sites (CWS) are located within the 2km search area which contain habitats that have the potential to support bats. The highest quality habitats identified within these sites include ancient and semi-natural woodlands, wetlands (saltmarsh, fen, reedbeds, lakes and ponds), scrub, hedgerows, heathland, dunes, and a range of species rich grasslands, all of which provide important roosting, foraging and commuting opportunities for the local bat assemblage.

3.1.4 No designated sites for biodiversity fall within or immediately adjacent to the survey areas, although an area of Pakefield to Easton Bavents SSSI designated for geological interest is present to the north the discounted Landfall Site near Southwold.

Ancient woodland

3.1.5 No areas of ancient woodland fall within or immediately adjacent to the survey areas. Four blocks of ancient woodland were identified within the wider Proposed Onshore Scheme Scoping Boundary comprising Holly Hill Wood (ancient, replanted woodland), Big/Common Wood (ancient and semi-natural woodland), Hinton Long Spring (ancient and semi-natural woodland), and Grove Wood (ancient, replanted woodland). Numerous other ancient woodland blocks are present within the 2km search area, including ancient and semi-natural woodland, and ancient replanted woodland.

Notable trees

3.1.6 Data provided by SBIS has not identified any ancient or veteran trees (which could support roosting bats) within the survey areas, however, two trees were identified during the PEA survey along the boundary of the proposed Converter

Station Site, one of which is T11808, a mature oak (shown in **Annex B: Ground Level Tree Assessment (GLTA) Results – Roost Suitability**). Ancient or veteran trees were also identified by SBIS and during the PEA surveys within the wider Proposed Onshore Scheme Scoping Boundary, with numerous other ancient or veteran trees identified within the 2km search area.

Bat records

3.1.7 Data received from SBIS included numerous recent records of bats from within the 2km search area. These records pertained to common and soprano pipistrelle, Daubenton's bat, Natterer's bat, noctule, barbastelle, brown long-eared bat, Nathusius' pipistrelle, and indeterminate *Pipistrellus* and *Myotis* species.

3.1.8 Observations provided with the records included notes on sex, ages and breeding status, behaviour, roost locations, roost types and occasionally a roost count (number of bats recorded exiting a roost at dusk).

3.1.9 Female barbastelle, Daubenton's bat, Natterer's bat, common pipistrelle, soprano pipistrelle, and brown long-eared bat were recorded as either being pregnant or in the post-lactation phase, indicating these species breed locally and maternity roosts are likely to be present nearby. Non-breeding females and males of these species were also recorded, in addition to non-breeding noctule, serotine and Nathusius' pipistrelle. Juvenile bats were also recorded including barbastelle, Natterer's bat, noctule, common pipistrelle, and brown long-eared bat.

3.1.10 Behavioural observations were limited to noctule and serotine foraging activity, with a total of eight separate roosts identified with dusk emergence counts ranging from one to 23 bats.

3.1.11 No significant records dating over 10 years were provided; historic records were deemed relevant if they related to significant roosts such as maternity or hibernation roosts. Further details have been provided in **Table 3.1** below.

Table 3.1: Desk study records of bats within 2km of the Proposed Onshore Scheme

Species	Number of records	Date of most recent record	Closest proximity to the Proposed Onshore Scheme Scoping Boundary (km)
Common pipistrelle	24	2023	Several locations within the Proposed Onshore Scoping Boundary including at Walberswick, Wenhaston and to the west of Friston
Soprano pipistrelle	17	2023	Several locations within the Proposed Onshore Scoping Boundary including at Walberswick and to the west of Friston

Species	Number of records	Date of most recent record	Closest proximity to the Proposed Onshore Scheme Scoping Boundary (km)
Daubenton's bat	4	2023	Within the Proposed Onshore Scoping Boundary along the River Blyth to the north-west of Blythburgh
Natterer's bat	14	2023	1.4km south-east, within the Sizewell woodland block referred to as "Fiscal Policy"
Noctule	10	2023	Within the Proposed Onshore Scoping Boundary in Walberswick, off 7 Acres Lane
Barbastelle	9	2023	1.4km south-east, within the Sizewell woodland block referred to as "Fiscal Policy"
Myotis species	1	2015	2km east, within RSPB Minsmere
Pipistrelle species	2	2022	2km east, within RSPB Minsmere
Brown long-eared bat	32	2023	Several locations within the Proposed Onshore Scoping Boundary including at Walberswick, Wenhaston and to the west of Friston
Serotine	1	2023	Approximately 15m south of the Proposed Onshore Scoping Boundary, to the east of Wenhaston
Nathusius' pipistrelle	1	2023	Within the Proposed Onshore Scoping Boundary in Walberswick, off 7 Acres Lane

Existing bat mitigation licences

3.1.12 A search for bat mitigation licences confirmed one active licence within the Proposed Onshore Scheme Boundary. This licence pertained to the destruction of a breeding roosts and resting place for brown long-eared bat and common pipistrelle in Sotherton (2018-37030-EPS-MIT, 2018 – 2028). Numerous other licences are present within 2km of the Proposed Onshore Scoping Boundary.

3.2 Field surveys

Ground level tree inspection (GLTA)

3.2.1 A total of 17 trees were included in the GLTA in May 2024. These trees were split across the discounted Landfall Site at Southwold (x7 trees), and the proposed Converter Station Site to the east of Saxmundham (x10 trees). Three were classified as PRF-I and 14 were classified as PRF-M. A description of each tree is provided at **Annex A: Ground-level tree assessments and emergence survey**

results 2024, with a location plan provided at **Annex B: Ground Level Tree Assessment (GLTA) Results – Roost Suitability**.

PRF inspection surveys

3.2.2 The 14 trees identified as PRF-M during the GLTA were subject to PRF inspection surveys between June and September 2024.

3.2.3 Three of the 14 PRF-M trees were inaccessible to due to active bird nests or were deemed unsafe to climb due to high quantities of deadwood. These three trees were assessed via presence/likely absence surveys as an alternative survey method.

3.2.4 During the first PRF inspection survey in June 2024, three of the safely accessible trees (x11) were downgraded from PRF-M to PRF-I and were removed from the survey scope. These three trees were downgraded as upon closer inspection, the PRFs were either deemed unsuitable (negligible suitability), or of low suitability (PRF-I).

3.2.5 The remaining trees (x8) were subject to two further PRF inspection surveys across the season (a total of three inspections per tree overall). A summary of the survey effort has been provided in **Annex A: Ground-level tree assessments and emergence survey results 2024**.

3.2.6 No evidence of roosting bats was identified during any of the PRF inspection surveys.

Presence/likely absence surveys

3.2.7 The three trees deemed unsuitable for PRF inspection were assessed via presence/likely absence surveys between July and September 2024. Photographs of each PRF observed during the presence/likely absence surveys including a screenshot of the darkest point in the survey (via NVA), have been provided in **Annex C: Presence/likely absence survey potential roost feature and infra-red screenshots**.

3.2.8 No bats were observed emerging or entering any of the PRFs during the presence/likely absence surveys, and as such, the trees are not considered to support roosting bats.

3.2.9 Observations of general bat activity made by surveyors during the presence/likely absence surveys have been provided below in **Table 3.2**. Overall bat activity levels were low across all emergence surveys. Common and soprano pipistrelle were encountered most often, albeit in low numbers, with noctule, Leisler's bat and barbastelle recorded infrequently. Most activity pertained to bats commuting along the tree lines, with occasional bouts of foraging.

Table 3.2: Summary of observations made during presence/likely absence surveys

Tree reference	Survey date	Observations (no roosts identified)
T11872	17/07/2024	Common and soprano pipistrelle observed commuting and foraging along the tree line. Nyctalus species (either noctule or Leisler's bat) observed commuting along the tree line.
	20/08/2024	Noctule and Leisler's bat recorded close to sunset, likely commuting above the tree line (heard, not seen). Common pipistrelle heard briefly, presumed commuting nearby. Soprano pipistrelle, brown long-eared and a Myotis species were also recorded but not directly observed.
	17/09/2024	One common pipistrelle observed foraging along the tree line.
T11808	17/07/2024	Common and soprano pipistrelle observed commuting along the tree line. Nyctalus species (either noctule or Leisler's bat) and serotine heard but not seen.
	20/08/2024	Common and soprano pipistrelle observed and heard commuting along the tree line.
	17/09/2024	Common and soprano pipistrelle observed foraging and commuting along the tree line. Barbastelle recorded but not directly observed.
T11832	17/07/2024	Common pipistrelle commuting and foraging along the tree line.
	20/08/2024	Common and soprano pipistrelle commuting along the tree line.
	17/09/2024	Common and soprano pipistrelle heard commuting along the tree line. Barbastelle recorded but not directly observed.

4 Conclusion

4.1.1 The desk study confirmed no SACs with bats listed as a qualifying feature are located within 30km of the Proposed Onshore Scheme. Seventeen other statutory sites (SSSIs, NNRs and LNRs) are located within 5km, and 35 non-statutory CWS located within 2km, all of which contain highly suitable habitats for bats.

4.1.2 No statutory or non-statutory designated sites were identified within the survey areas.

4.1.3 No ancient woodlands were identified within the survey areas; however, four blocks of ancient woodland were located within the wider Proposed Onshore Scheme Scoping Boundary. Numerous other ancient and semi-natural woodland blocks are present within 2km of the Proposed Onshore Scheme Scoping Boundary.

4.1.4 No ancient or veteran trees are present within the survey areas, but 14 ancient/veteran trees are present within the wider Proposed Onshore Scheme Scoping Boundary, with numerous others identified up to 2km from the Proposed Onshore Scheme Scoping Boundary.

4.1.5 Data received from SBIS provided records of locally common species such as common and soprano pipistrelle, Natterer's bat and noctule, as well as locally uncommon species including barbastelle (an Annex II species) and Daubenton's bat.

4.1.6 All records pertained to individual bats; no roost records were provided. No bat mitigation licences were recorded within the survey areas, but a search on MAGIC confirmed one active licence within the wider Proposed Onshore Scheme Scoping Boundary. Numerous other licences are present within 2km of the Proposed Onshore Scheme Scoping Boundary indicating roosts are present within the wider landscape.

4.1.7 GLTA surveys undertaken at the discounted Landfall Site at Southwold and the proposed Converter Station Site to the east of Saxmundham in May 2024 targeted 17 trees identified as having the potential to support roosting bats. Seven of the 17 trees were in the discounted Landfall Site at Southwold study area and included white willow and goat willow, with PRFs ranging from hazard beams, knot holes, lifting bark, tear-outs, butt rot, fluting and welding. Three of the trees were categorised as PRF-I and four were categorised as PRF-M following the first PRF inspection survey.

4.1.8 Ten trees identified as having the potential to support roosting bats were within the Saxmundham proposed Converter Station study area and included oak, ash and field maple, with PRFs ranging from tear-outs, butt rot, knot holes, dense ivy, pruning cuts, desiccation cracks, lifting bark and subsidence cracks. Three of the

trees were categorised as PRF-I and seven were categorised as PRF-M following the first PRF inspection survey.

4.1.9 No evidence of roosting bats was identified during any of the PRF inspection surveys.

4.1.10 The remaining trees which were not surveyed by PRF inspection surveys were instead assessed via presence/likely absence surveys. No bats were observed emerging or entering any of the PRFs, and as such, the trees are not considered to support roosting bats.

Annex A: Ground-level tree assessments and emergence survey results 2024

Tree ID	Location	Species	Description	Roost suitability (GLTA)	Number of climbs required	Final PRF value following climb	Visit 1**	Visit 2	Visit 3	Visit 4	Roost identified
11868	Discounted Landfall Site at Southwold	White willow (*Salix alba*) (mature)	• PRF-M: Hazard beam branch	PRF-M	3	PRF-I	21/06/2024	n/a	n/a	n/a	No
11872	Discounted Landfall Site at Southwold	White willow (mature)	• PRF-M: Knot hole in main trunk and tree with lifting bark and cracks	PRF-M	3	PRF-M	21/06/2024 (active bird nest found during visit 1, remaining visits undertaken as presence/likely absence surveys)	17/07/2024 (emergence)	20/08/2024 (emergence)	17/09/2024 (emergence)	No
11875	Discounted Landfall Site at Southwold	Italian elder (*Alnus cordata*) (mature)	• PRF-I: Weld stem	PRF-I*	0	n/a	n/a	n/a	n/a	n/a	No
11878	Discounted Landfall Site at Southwold	White willow (mature)	• PRF-I: stem fluting • PRF-I: stem fluting	PRF-I	0	n/a	n/a	n/a	n/a	n/a	No

Tree ID	Location	Species	Description	Roost suitability (GLTA)	Number of climbs required	Final PRF value following climb	Visit 1**	Visit 2	Visit 3	Visit 4	Roost identified
			• PRF-I: Tear out main trunk								
11883	Discounted Landfall Site at Southwold	Goat willow (*Salix caprea*) (mature)	• PRF-M: Butt rot in main trunk	PRF-M	3	PRF-M	19/06/2024	31/07/2024	20/09/2024	n/a	No
11886	Discounted Landfall Site at Southwold	Goat willow (mature)	• PRF-M: Tear out in main trunk	PRF-M	3	PRF-M	19/06/2024	31/07/2024	20/09/2024	n/a	No
11890	Discounted Landfall Site at Southwold	Goat willow (mature)	• PRF-M: Butt rot in main trunk	PRF-M	3	PRF-M	19/06/2024	31/07/2024	20/09/2024	n/a	No
11805	Proposed Converter Station Site	Oak (*Quercus sp.*) (mature)	• PRF-M: Tear out in stem • PRF-I: Tear out in stem	PRF-M	3	PRF-M	19/06/2024	12/07/2024	04/09/2024	n/a	No
11806	Proposed Converter Station Site	Ash (*Fraxinus excelsior*) (mature)	• PRF-M: Butt rot in main trunk	PRF-M	3	PRF-M	19/06/2024	12/07/2024	04/09/2024	n/a	No
11808	Proposed Converter Station Site	Oak (mature)	• PRF-M: Knot hole in stem • PRF-I: Ivy on main trunk	PRF-M	3	PRF-M	03/06/2024 (PRF inaccessible. Remaining visits undertaken as	17/07/2024 (emergence)	20/08/2024 (emergence)	17/09/2024 (emergence)	No

Tree ID	Location	Species	Description	Roost suitability (GLTA)	Number of climbs required	Final PRF value following climb	Visit 1**	Visit 2	Visit 3	Visit 4	Roost identified
			• PRF-M: Pruning cut in stem • PRF-M: Pruning cut in stem				presence/likely absence surveys)				
11826	Proposed Converter Station Site	Oak (mature)	• PRF-I: Branch desiccation fissure	PRF-I	0	n/a	n/a	n/a	n/a	n/a	No
12215	Proposed Converter Station Site	Ash (mature)	• PRF-M: Main trunk Knot Hole	PRF-M	3	PRF-M	03/06/2024	12/07/2024	04/09/2024	n/a	No
11832	Proposed Converter Station Site	Oak (dead)	• PRF-M: Main trunk knot hole, advanced state of decay. • PRF-M: Main trunk subsidence crack	PRF-M	3 (emergence surveys required. Climbing is not possible due to health and safety concerns)	PRF-M	17/07/2024 (emergence)	20/08/2024 (emergence)	17/09/2024 (emergence)	n/a	No
11829	Proposed Converter Station Site	Field maple (*Acer campestre*) (early mature)	• PRF-M: Main trunk knot hole	PRF-M	3	PRF-I	22/05/2024	n/a	n/a	n/a	No

Tree ID	Location	Species	Description	Roost suitability (GLTA)	Number of climbs required	Final PRF value following climb	Visit 1**	Visit 2	Visit 3	Visit 4	Roost identified
11836	Proposed Converter Station Site	Oak (mature)	• PRF-I: Pruning cut in branch • PFR-M: Knot hole on main trunk	PRF-M	3	PRF-I	22/05/2024	n/a	n/a	n/a	No
11843	Proposed Converter Station Site	Oak (mature)	• PRF-M: Pruning cut on stem • PFR-I: Lifting bark • PRF-I: Pruning cut on main trunk	PRF-M	3	PRF-M	03/06/2024	12/07/2024	04/09/2024	n/a	No
11847	Proposed Converter Station Site	Oak (mature)	• PRF-M: Large butt rot on main trunk • PRF-I: tear out on branch • PRF-M: tear out in main trunk	PRF-M	3	PRF-M	03/06/2024	12/07/2024	04/09/2024	n/a	No

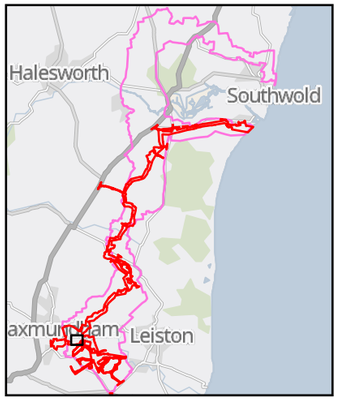
*PFR-I trees do not require further inspection.

**The overall suitability of a tree was assessed in closer detail during Visit 1 (climber-based PRF inspections). The suitability of the PRF was either upgraded, downgraded, or retained. The number of visits required was amended based on the results of Visit 1.

Annex B: Ground Level Tree Assessment (GLTA) Results – Roost Suitability

Roost Suitability

- PRF-M
- PRF-I
- Proposed Onshore Scheme Draft Order Limits
- Proposed Converter Station Site
- Proposed Onshore Scheme Scoping Boundary



Coordinate System: British National Grid

Metres

0 25 50 100

Rev	Date	By	Chkd	Appd	Authd
02	29/09/2025	AW	JM	SA	LC

ARUP

8 Fitzroy Street
London W1T 4BJ
Tel +44 20 7636 1531
www.arup.com

Client

National Grid LionLink Limited (NGLLL)

Project Name

LionLink

Drawing Title

Ground Level Tree Assessment (GLTA) Results - Roost Suitability

Sheet 1 of 2

Scale at A3

1:2,000

Role

Bat Roost Report

Suitability

For Information

Project Number

287334-00

Rev

02

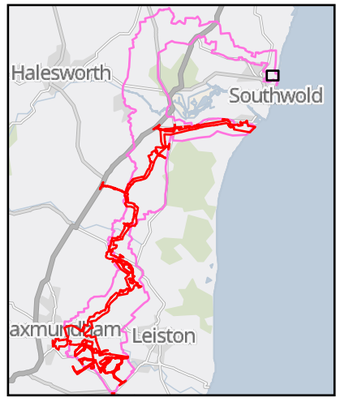
Drawing Number

LL-ARP-FIG-ENV-0165-P01

A3

Roost Suitability

- PRF-M
- PRF-I
- Proposed Onshore Scheme Draft Order Limits
- Proposed Onshore Scheme Scoping Boundary
- Landfall Site Option at Southwold (now discounted)



Coordinate System: British National Grid

Metres

0 25 50 100

Rev	Date	By	Chkd	Appd	Authd
02	29/09/2025	AW	JM	SA	LC

ARUP

8 Fitzroy Street
London W1T 4BJ
Tel +44 20 7636 1531
www.arup.com

Client

National Grid LionLink Limited (NGLLL)

Project Name

LIONLINK

Drawing Title

Ground Level Tree Assessment (GLTA) Results - Roost Suitability

Sheet 2 of 2

Scale at A3

1:2,000

Role

Bat Roost Report

Suitability

For Information

Project Number

287334-00

Rev

02

Drawing Number

LL-ARP-FIG-ENV-0165-P01

A3

Annex C: Presence/likely absence survey potential roost feature and infra-red screenshots

Tree reference	PRF type	PRF	Emergence survey (darkest point on infra-red cameras across all surveys)
11872	**PRF-M** Knot hole in main trunk and tree has lots of lifting barks and cracks		
11808	**PRF-M** Knot hole in stem		

Tree reference	PRF type	PRF	Emergence survey (darkest point on infra-red cameras across all surveys)
	PRF-I Ivy on main trunk		As above – PRF covered by the same footage
	PRF-M Pruning cut in stem		
	PRF-M Pruning cut in stem	As above	As above – PRF covered by the same footage

Tree reference	PRF type	PRF	Emergence survey (darkest point on infra-red cameras across all surveys)
11832	**PRF-M** Main trunk knot hole, advanced state of decay.		
	PRF-M Main trunk subsidence crack		As above – PRF covered by the same footage

Glossary and Abbreviations

Term	Definition
CWS	County Wildlife Sites
GLTA	Ground Level Tree Assessment
GW	Gigawatts
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IUCN	International Union for Conservation Nature
LNR	Local Nature Reserves
MAGIC	Multi Agency Geographic Information for the Countryside
NNR	National Nature Reserve
PEA	Preliminary Ecological Appraisal
PRF	Potential Roosting Feature
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SBG	Suffolk Bat Group
SBIS	Suffolk Biodiversity Information Services
SPI	Species of Principal Importance
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
The Proposed Scheme	The term Proposed Scheme will be used when referring to the GB scheme components as a whole and will not include the Dutch components.
The Proposed Onshore Scheme	The term used when referring to the onshore components of the Proposed Scheme.

References

Ref 1 National Grid (2024) LionLink Environmental Impact Assessment Scoping Report Volume 1 Main Text. Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020033/documents (Accessed May 2025).

Ref 2 The Conservation of Habitats and Species Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/1012/made (Accessed April 2025).

Ref 3 Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents (Accessed April 2025).

Ref 4 Natural Environment and Rural Communities (NERC) Act 2006. Available at: https://www.legislation.gov.uk/ukpga/2006/16 (Accessed April 2025).

Ref 5 European Commission (2024) The Habitats Directive. Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/habitats-directive_en#law (Accessed April 2025).

Ref 6 International Union for Conservation Nature (IUCN) (2024) The IUCN Red List of threatened species. Available at: https://www.iucnredlist.org/ (Accessed April 2025).

Ref 7 Suffolk Biodiversity Information Service (SBIS) (2017) Bats in Suffolk: Distribution Atlas 1983 – 2016. Available at: https://www.suffolkbis.org.uk/sites/default/files/images/species/Bat%20Atlas%201983_2016%20final.pdf (Accessed April 2025).

Ref 8 Suffolk Biodiversity Information Service (SBIS) (2024) Suffolk's Priority Species. Available at: Suffolk's Priority Species | Suffolk Biodiversity Information Service (Accessed April 2025).

Ref 9 Department for Environment, Food and Rural Affairs (DEFRA), "MAGIC," (2024). Available at: https://magic.defra.gov.uk/home.htm (Accessed April 2025).

Ref 10 Joint Nature Conservation Committee (JNCC), "JNCC," (2024). Available at: https://jncc.gov.uk/ (Accessed April 2025).

Ref 11 Woodland Trust. Ancient Tree Inventory. Available at: Ancient Tree Inventory - Woodland Trust (Accessed April 2025).

Ref 12 J. Collins, Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed.), London: The Bat Conservation Trust, 2023.

Ref 13 Chartered Institute of Ecology and Environmental Management (CIEEM), "Technical Guidance Series: Competencies for species surveys (Bats)," April 2013. Available at: https://cieem.net/wp-content/uploads/2019/02/CSS-BATS-April-2013.pdf (Accessed April 2025).

Ref 14 A. J. Mitchell-Jones and A. P. McLeish, “The Bat Worker's Manual,” Pelagic Publishing, Exeter, 2012.

Ref 15 Bat Tree Habitat Key,” 2020. Available at: http://battreehabitatkey.co.uk/ (Accessed April 2025).

Ref 16 H. Andrews, Bat roosts in trees: A guide to identification and assessment for tree-care and ecology professionals, Exeter: Pelagic Publishing, 2018

Ref 17 If there are a large number of trees with features categorised as PRF-I then this increases the likelihood of a roost being present. Conversely, if there are very few trees in the landscape then PRF-I features may have increased importance. Context should always be understood and considered.

Ref 18 Multiple survey visits should be spaced out to sample as much of the recommended survey period as possible. It is recommended that surveys are spaced at least three weeks apart, preferably more. Survey timings should consider the prevailing conditions in the year of survey, which will vary geographically.

Ref 19 In years with a cold spring, the surveys should not be started in early May. The surveys should maximise the possibility of detecting maternity roosts, and the optimum coverage includes the pre-parturition, post-parturition and mating periods.

Ref 20 Wildlife Acoustics (2024) Kaleidoscope Pro Analysis Software. Available at: https://www.wildlifeacoustics.com/products/kaleidoscope-pro (Accessed April 2025).

National Grid LionLink Limited

Company number 14722364

1-3 Strand

London

WG2N 5EH

United Kingdom

nationalgrid.com/lionlink