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AWEL Y MÔR OFFSHORE WIND FARM

Bat Survey Report

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1.0 Introduction

Awel y Môr Offshore Wind Farm (AyM) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) is being undertaken and an Environmental Statement (ES) will be provided as part of a Development Consent Order (DCO) application under the Planning Act 2008.

SLR Consulting was commissioned by GoBe Consultants, on behalf of Awel y Môr Offshore Wind Ltd (AyMOWL), in May 2020 to undertake the onshore ecological work necessary to inform the EIA. This report provides details of the bat surveys undertaken between April and October 2021.

1.1 Background

An EIA Scoping Report was prepared in accordance with Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and Regulation 6 of the Marine Works (Environmental Impact Assessment) Regulations 2007. The EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in June 2020. Within the EIA Scoping Report, full details were provided as to the proposed approach for ecological survey and assessment. An EIA Scoping Opinion was provided by PINS in response to the EIA Scoping Report, in July 2020. Comments made in the EIA Scoping Opinion have been taken into account within this report, where relevant. Both documents are available at the PINS website¹; the EIA Scoping Report and EIA Scoping Opinion content is not repeated here, and readers should refer to the original documents for details.

A Preliminary Ecological Appraisal (PEA) was subsequently carried out during the period July to September 2020 for three landfall locations, cable route corridors and substation locations that were under consideration by The Applicant at that time. This was informed by additional desk-based study and initial habitat survey, based on interpretation of aerial imagery and ground-based survey, where access was possible. Findings were presented in a PEA² report, submitted to the AyM EIA Evidence Plan Expert Topic Group (which includes Natural Resources Wales (NRW), Denbighshire County Council (DCC), the Royal Society for the Protection of Birds (RSPB) and North Wales Wildlife Trust (NWWT)), in February 2021 for information and comment. The PEA report included detailed survey proposals for bats. The PEA has also been shared as part of the Preliminary Environmental Information Report (PEIR), that was provided in August 2021 to inform Statutory Consultation for AyM.

The final scope of the bat survey was determined following the agreement of access to areas that were not able to be visited in 2020 and in line with the recommendations in the PEA report, plus additional email consultation with NRW in June 2021.

1.2 Survey Area

In accordance with the EIA Scoping Report, PEA report and discussion with NRW, bat activity survey was undertaken at hedgerows, woodlands and/or riparian areas which may be removed, illuminated or breached. Preliminary roost inspections and presence/absence surveys were conducted at trees which may be removed or disturbed.

Within this report the following terms are used:

¹<https://infrastructure.planninginspectorate.gov.uk/projects/wales/awel-y-mor-offshore-wind-farm/?ipcsection=docs>

² For a copy of the PEA refer to AyM Offshore Windfarm Environmental Statement Volume 5, Annex 5.1.

- Study Area: This is the 2km zone around the Draft Order Limits (DOL) presented at Statutory Consultation. The Draft Order Limits have been reduced following Statutory Consultation, however the Study Area (and Survey Area defined below) remains adopted for the purposes of characterisation.
- Survey Area: Within the DOL presented at Statutory Consultation, plus the surrounding 100 m (i.e. 100m either side of the onshore ECC and to all sides of any other infrastructure or works areas such as Temporary Construction Compounds (TCCs) and access tracks). This includes all areas landward of Mean High Water Springs (MHWS).
- Areas other than these are specifically described.

1.3 Purpose of this Report

This report presents the findings of the bat survey. The report seeks to establish baseline conditions and identify habitats that may be important for bat species. The assessment of impacts resulting from AyM is beyond the scope of this report however and will be covered in the Onshore Biodiversity and Nature Conservation chapter of the ES.

The main objectives of the study were to gather baseline information in respect of bats and in particular the following:

- Assess the suitability of trees and habitats for roosting, foraging and commuting bats;
- Determine the presence/likely absence of bat roosts and characterise any roosts that are present;
- Assess the use of the site by bats for foraging and commuting, and if possible, to determine relative activity levels across the site so as to inform avoidance and /or mitigation measures.

1.4 Evidence of Technical Competence and Experience

1.4.1 Survey Team

The table below provides details of the SLR staff who undertook the surveys.

Table 1-1
Survey Staff

Name & Position	Professional Memberships and Bat licence details	Years Experience of bat survey	Survey(s) conducted
Jess Colebrook, Principal Ecologist	Chartered Environmentalist (CEnv) Full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) NRW bat licence - S088415/1	21 years	Preliminary Roost Assessment (PRA) Presence/Absence Survey – Dusk emergence/dawn re-entry

Name & Position	Professional Memberships and Bat licence details	Years Experience of bat survey	Survey(s) conducted
Emma Clarke, Senior Field Ecologist	Qualifying member of CIEEM Accredited Agent on NRW bat licence S088415/1 - Jess Colebrook (Licensee)	3 years	Preliminary Roost Assessment (PRA) Presence/Absence Survey – PRF Inspection
Emily Drinkwater Senior Field Ecologist	Qualifying member of CIEEM No NRW licence, but Natural England (NE) Class 1 from December 2015 and NE Class 2 from March 2017	11 years	Preliminary Roost Assessment (PRA) Presence/Absence Survey – PRF Inspection
Rhian Hughes,	MCIEEM NRW licence ref: S087351-1	11 years	Preliminary Roost Assessment (PRA) Presence/Absence Survey – PRF Inspection
Amy Gill, Project Ecologist	Qualifying member of CIEEM (application in process)	2 years	Activity Survey (Transect) Activity Survey (Automated) Presence/Absence Survey-dusk emergence/dawn re-entry
Liz Probert, Senior Ecologist	Qualifying member of CIEEM Accredited Agent on NRW bat licence S088415/1 - Jess Colebrook (Licensee)	9 years	Presence/Absence Survey-dusk emergence/dawn re-entry Activity Survey (Transect)
Hannah McBlain, Assistant Ecologist	Qualifying member of CIEEM (application in process)	7 months	Presence/Absence Survey-dusk emergence/dawn re-entry Activity Survey (Transect) Activity Survey (Automated)
Charlie Kempton, Assistant Ecologist	Qualifying member of CIEEM	7 months	Presence/Absence Survey-dusk emergence/dawn re-entry

Name & Position	Professional Memberships and Bat licence details	Years Experience of bat survey	Survey(s) conducted
Shannon Davies, Senior Ecologist	Qualifying member of CIEEM	5 years	Activity Survey (Transect) Activity Survey (Automated)

1.4.2 Bat Sound Data Analysis

The bat sound data analysis was undertaken by Emma Clarke and Amy Gill, both of whom are skilled at bat sound analysis, using the software programme Kaleidoscope Pro. Quality assurance checks and additional support was provided by Jess Colebrook and Emily Drinkwater.

1.4.3 Reporting

This report has been authored by Emma Clarke and Jess Colebrook. Jess is leading the onshore ecological work necessary to inform the EIA for the project, has been involved in the scoping and consultation process. Additional technical support and Quality Assurance review has been provided by Lis Weidt, a Senior Ecologist at SLR Consulting. Lis has seven years' experience of working in ecological consultancy and is a Full Member of the Chartered Institute of Ecology & Environmental Management (MCIEEM). Lis has led small and medium scale development projects delivering Ecological Impact Assessments She holds a Natural England Bat Licence (Class 4) and has nine years of experience in carrying out surveys for a variety of bat species.

2.0 Methodology

The methods used during each survey are in accordance with the Bat Conservation Trust (2016) Bat Survey for Professional Ecologists Good Practice Guidelines (3rd Edition)³ unless stated otherwise.

2.1 Baseline Data Collection

2.1.1 Desk Study

A desk-based study has been undertaken to identify sources of pre-existing ecological data of relevance, that could inform the EIA; this is reported within Table 2-1 of the PEA report. Note also that subsequent to completion of the PEA report, an updated data request was made to Cofnod for records within c.2km of the DOL that were presented at Statutory Consultation and any relevant data received up to 8th September 2021 have been included in this report.

2.1.2 Field Surveys: Roost Assessment

Numerous buildings and structures are present within the survey area that may be used by roosting bats; none are anticipated to be affected by the project (directly or indirectly) and therefore none have been specifically mapped or surveyed.

The method in respect of tree survey slightly differs from the Bat Conservation Trust (2016) guidelines, but uses appropriate and proportionate techniques to inform the EIA process. It was put forward to NRW within a Technical Note and email on 25.06.2021, included at Appendix 1. NRW confirmed the approach was acceptable in an email from Matthew Ellis (NRW Species Officer) to Jess Colebrook (SLR Principal Ecologist) dated 02/07/2021.

Refer to Figure 1 for tree locations, observation locations, transect routes and static detector locations. Full details in respect of survey dates, conditions, surveyors, equipment used and limitations is included in the detailed tabulated results data for each tree at Appendices 2 and 3.

A summary of the suite of surveys undertaken is provided below.

Preliminary Roost Assessment

All trees within the survey area were subject to a preliminary roost assessment (PRA) by a licensed batworker. The inspection involved using binoculars and torches to seek Potential Roost Features (PRF), such as lifted bark, dense ivy, woodpecker hole and/or other cavities. Trees were then assessed as having negligible, low, moderate or high potential to support bats as follows (in accordance with BCT (2016)):

- Negligible: Negligible habitat features likely to be used by roosting bats.
- Low: A tree of sufficient size and age to contain PRFs but with none seen or features seen with only very limited roosting potential.

³ Collin, J (ed)(2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

- **Moderate:** A tree with one or more PRFs 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.
- **High:** A tree with one or more PRFs 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.

In accordance with published good practice, trees with moderate potential were subject to a minimum of two presence/absence survey visits to determine likely bat absence, trees with high potential were subject to three. See below for presence/absence survey details.

Presence/Absence Survey - Potential Roost Feature Inspection

Trees which could potentially be lost or damaged or disturbed by the project and assessed with moderate or high potential to support bats during the PRA were subject to an at-height PRF inspection (where safe to do so) during the active season (May – September) to better determine the roost potential and gather evidence of roosting bats (if present).

The detailed survey of PRFs involved a search for signs such as droppings, feeding remains, urine staining and scratch marks, as well as for bats themselves. All safely accessible PRFs were closely inspected using high powered torches (1M candle power), endoscopes, close focus binoculars and bat detectors as appropriate. Evidence of bat use and details of individual PRFs was recorded by surveyors and used to refine the assessment of the likelihood that an individual feature would be used by bats. Any bat droppings were retained and sent for eDNA analysis to determine bat species.

If full survey was possible during the PRF inspection, and given that all such inspections were undertaken in the summer period, the survey was deemed to count as a presence/absence survey. If full survey access was not possible (due to complicated features or lack of safe access) then the PRF inspection was not counted as a complete presence/absence survey and additional dusk emergence/dawn re-entry survey carried out accordingly.

Presence/Absence Survey – dusk emergence and dawn re-entry survey

All trees which could potentially be lost or damaged or disturbed by the project and assessed with moderate or high potential to support bats during the PRA were also subject to dawn emergence and/or dawn re-entry survey to better determine bat presence/absence.

Surveyors were positioned so to allow full view of trees with PRF, as indicated on Figure 1. The survey commenced by observing PRF at each tree using Guide Infra Red (IR) Pro Thermal Imaging cameras to determine if there were any hotspots that could suggest animal presence. Thereafter surveyors then closely watched from 15 minutes before dusk until 90 minutes afterward, or in the case of dawn surveys 90 minutes prior to sunrise until daylight. All bat activity was recorded using full spectrum detector equipment (Batlogger M) and Guide IR Pro Thermal Imaging cameras. Sound data was analysed to confirm species identification at recorded roosts only; however the remainder has been held on file for reference.

2.1.3 Field Surveys: Activity Survey

The habitat within the Survey Area is considered to be of varying quality for use by foraging and commuting bats, and has therefore subdivided into the following areas for the purpose of activity surveys (listed from north to

south), based upon definitions provided Table 4.1 of survey guidelines⁴. The survey effort at each area meets the recognised standard, but goes beyond these standards in terms of automated detector installation.

- Landfall south to railway: low potential. No potential flight line severance, no survey undertaken.
- Transect 1. South of railway, north of A525: high potential
 - One transect defined. One survey visit per month (April – October) undertaken at dusk or dawn.
 - Six automated bat detectors installed, data collected on five consecutive nights per month (April – October).
- Transect 2. Area between A525 and A547 (River Clwyd): Moderate potential.
 - One transect defined. One survey visit per month (April – October) undertaken at dusk or dawn.
 - Four automated bat detectors installed, data collected on five consecutive nights per month (April – October).
- Transects 3 & 4. All areas south of A547: high potential
 - Two transects defined. One survey visit per transect per month (April – October) undertaken at dusk or dawn.
 - Six automated bat detectors installed per transect, data collected on five consecutive nights per month (April – October).

Transects

A team of two surveyors walked each transect route (shown on Figure 1), starting at sunset and taking 2-3 hours to complete. The survey team were each equipped with a full spectrum bat detector (Batlogger M) which recorded bat calls, times and location. In addition, surveyors made notes of bats observed during the survey including behaviours seen and direction of flight. Data from the detectors was later subject to analysis to determine species using sound analysis software (Kaleidoscope Pro), refer also to Section 2.2.

The survey details are provided in the table below.

Table 2-1
Transect Survey Dates, Times and Weather

Date	Transect No.	Sunset/Sunrise Time	Survey Period	Weather at start	
12/04/21 (Dusk)	1	20:09	20:09 to 22:55	6 °C, wind NW 3mph, 1/8 cloud cover and dry.	4 °C, wind WNW 3mph, cloud cover 2/8 and no rain throughout.

⁴ Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)(2016)

Date	Transect No.	Sunset/Sunrise Time	Survey Period	Weather at start	
13/05/21 (Dusk)	1	21:04	21:04 to 23:44	10 °C, wind WNW 5mph, 6/8 cloud cover and dry.	9 °C, wind NW 1mph, 8/8 cloud cover and no rain throughout.
03/06/21 (Dusk)	1	21:33	21:33 to 00:16	16°C, wind SW 8mph, 2/8 cloud cover and dry.	11 °C, wind S 6mph, 1/8 cloud cover and dry throughout.
07/07/21 (Dusk)	1	21:42	21:42 to 00:03	15°C, a light air, 8/8 cloud cover and dry.	15°C, with a light air, 8/8 cloud cover and no rain throughout survey.
08/07/21 (Dawn)	1	04:55	02:55 to 04:59	17°C, a light air, 8/8 cloud cover and dry.	15 °C, with a light air, 7/8 cloud cover and no rain throughout survey.
06/09/21 (Dusk)	1	19:52	19:50 to 21:55	18°C, light breeze, 3/8 cloud and dry.	16°C, light air, 2/8 cloud and dry throughout survey.
02/08/21 (Dusk)	1	21:03	21:00 to 23:11	17°C, light breeze, 8/8 cloud and dry but with heavy rain immediately prior.	15°C, a light air, 8/8 cloud and dry.
07/10/21 (Dusk)	1	18:36	18:36 to 20:36	18°C, 7/8 cloud, wind light breeze and dry.	18°C, 7/8 cloud, wind a light northerly breeze and dry throughout survey.
19/04/21 (Dusk)	2	20:21	20:21 to 22:28	11 °C, wind WSW 5mph, 3/8 cloud cover and dry.	6 °C, wind WNW 2mph, 4/8 cloud cover and no rain throughout.
19/05/21 (Dusk)	2	21:13	21:13 to 23:26	13°C, wind SW 7mph, 2/8 cloud cover and dry.	8 °C, wind SSE 7mph, 2/8 cloud cover and no rain throughout.
09/06/21 (Dusk)	2	21:40	21:35 to 23:40	18 °C, wind SSW 8mph, 6/8 cloud cover and dry.	16 °C, wind S 3mph, 4/8 cloud cover and no rain throughout.
10/06/21 (Dawn)	2	04:47	02:41 to 04:47	16 °C, wind SSE 2mph, 1/8 cloud cover and dry.	14 °C, wind SSE 3mph, 3/8 cloud cover and no rain throughout.
12/07/21 (Dusk)	2	21:37	21:37 to 23:39	18°C, a light air, 8/8 cloud and dry.	17°C, light air, 8/8 cloud and no rain throughout survey.
09/08/21 (Dusk)	2	20:55	20:55 to 22:55	14°C, light breeze, 3/8 cloud cover and dry.	15°C, with a light air, 8/8 cloud cover and no rain throughout survey.
13/09/21 (Dusk)	2	19:34	19:33 to 21:36	17°C, light air, 8/8 cloud and dry.	15°C, light air, 8/8 cloud and slight rain.

Date	Transect No.	Sunset/Sunrise Time	Survey Period	Weather at start	
13/10/21 (Dusk)	2	18:23	18:23 to 20:23	13°C, 8/8 cloud, wind a light northerly air and dry.	12°C, 6/8 cloud, wind calm and dry throughout survey.
20/04/21 (Dusk)	3	20:23	20:23 to 22:39	9°C, wind NW 4mph, 6/8 cloud cover and dry.	4°C, wind WSW 3mph, 2/8 cloud cover and no rain throughout.
20/05/21 (Dusk)	3	21:14	21:14 to 23:14	11 °C, wind SSW 16mph, 7/8 cloud cover and drizzle.	10 °C, wind SSW 13mph, 8/8 cloud cover and light rain throughout.
10/06/21 (Dusk)	3	21:40	21:40 to 23:43	17 °C, wind SSW 12mph, 4/8 cloud cover and dry.	16 °C, wind SW 12mph, 5/8 cloud cover and no rain throughout.
11/06/21 (Dawn)	3	02:47	02:47 to 04:47	17 °C, wind SSW 10mph, 6/8 cloud cover and dry.	16 °C, wind SW 10mph, 8/8 cloud cover and no rain throughout.
13/07/21 (Dusk)	3	21:36	21:36 to 23:41	17°C, wind eastly with a light breeze, 2/8 cloud and dry.	13°C, light air, 1/8 cloud and no rain throughout survey.
10/08/21 (Dusk)	3	20:53	20:51 to 23:15	17°C, wind WNW 2mph, 8/8 cloud cover and dry.	14°C, wind S 4mph, 7/8 cloud cover and no rain throughout survey.
14/09/21 (Dusk)	3	19:33	19:31 to 21:45	19°C, light air, 2/8 cloud and dry.	13°C, light air, 1/8 cloud and dry throughout survey.
14/10/21 (Dusk)	3	18:21	18:21 to 20:43	16°C, 3/8 cloud, wind a light southerly air and dry throughout survey.	15°C, 7/8 cloud, calm and dry throughout survey.
26/04/21 (Dusk)	4	20:35	20:35 to 23:19	13 °C, still, 8/8 cloud cover and dry.	11 °C, still, 8/8 cloud cover and no rain throughout.
27/05/21 (Dusk)	4	21:25	21:25 to 23:32	13 °C, wind NW 3mph, 7/8 cloud cover and dry.	11 °C, wind S 3mph, 8/8 cloud cover and light rain during last 10 minutes.
16/06/21 (Dusk)	4	21:44	21:44 to 23:50	16 °C, calm, 8/8 cloud cover and humid.	13°C, calm, 8/8 cloud cover and no rain throughout but still humid.
17/06/21 (Dawn)	4	04:45	02:44 to 04:52	14 °C, calm, 7/8 cloud cover and dry.	13 °C, calm, 8/8 cloud cover and no rain throughout survey.
20/07/21 (Dusk)	4	21:28	21:28 to 23:30	19°C, calm, 0/8 cloud cover and dry.	17°C, calm, 0/8 cloud cover and no rain throughout survey.

Date	Transect No.	Sunset/Sunrise Time	Survey Period	Weather at start	
16/08/21 (Dusk)	4	20:40	20:40 to 22:40	16°C, light breeze, 8/8 cloud cover and dry.	14°C, calm, 8/8 cloud cover and no rain throughout survey.
20/09/21 (Dusk)	4	19:18	19:15 to 21:18	14°C, no wind, 6/8 cloud and dry.	12°C, wind a light northerly air, 4/8 cloud and dry throughout the survey.
21/10/21 (Dusk)	4	18:05	18:05 to 20:15	9°C, wind 6mph, 6/8 cloud and dry.	8°C, wind WSW 10mph, 7/8 cloud and a light shower lasting around 5 minutes occurred at 18:30, otherwise dry.

Automated static detector survey

22 automated Anabat Swift detectors were installed at probable flightlines/foraging areas and left to collect data for a minimum of five consecutive nights per month from April to October 2021 inclusive. Refer to Figure 1 and Table 2-2 for locations.

Table 2-2
2021: Anabat Swift Location Details (1-11)

No	Easting	Northing	Location Description
1	303545	381736	Upon a fence post in the corner of an agricultural field, under a willow tree and besides a wet ditch.
2	303542	381500	Upon a hawthorn tree within a hedgerow bordering an agricultural field north of the Dyserth Road, Rhyl.
3	303495	380593	Within a hedgerow over a ditch where public footpaths meet west of Rhydorddwy-wen Covert and north of Cottage Covert, east of Rhyl.
4	303351	380251	Within a hedgerow to the west of Cottage Covert and near to 'The Flash' a wetland area to the southeast of Rhyl.
5	302734	379668	At the edge of a woodland, Bryn Cwnin Covert, on a young tree. The woodland edge is adjacent to sheep grazed fields.
6	303104	379624	In the middle of a small and relatively young woodland next to a lane which is located to the northeast of the A547.
7	302271	379138	Upon a cherry tree which makes up a short line of trees surrounded by horse grazed paddocks, just southwest of A525.
8	302018	378965	Upon a fence post near to a hawthorn tree and a wet ditch, the adjacent fields are sheep grazed or horse paddocks. To the south is Afon Ffyddion.

No	Easting	Northing	Location Description
9	301367	378478	Attached to a hawthorn tree which is located close to the public footpath running alongside the southwest of the River Clwyd. There are agricultural fields to the south and a ditch adjacent to the northeast.
10	301123	377934	Upon a fence post running parallel to a hedgerow within sheep grazed fields to the north of the A547.
11	301226	377179	Upon a fence post near to the corner of grazed pasture there is a ditch adjacent which is lined with willow trees.
12	301469	376957	In the corner of a grazed field within a hedgerow, south of Rhyl and the A547.
13	301547	376366	Within an area of woodland off the Nant-Y-Faenol Road, Pengwern attached to a tree in close proximity to an abandoned building/bunker.
14	301558	375791	At a field corner underneath the foliage of trees between Pengwern and the A55 to the south.
15	301547	375427	At the edge of a small woodland within the hedgerow which borders the west side, northeast of Tyddn Isaf farm.
16	301893	375100	Within Prince's Gorse woodland just north of the A55 attached to a tree in the northeast corner.
17	301182	374562	Within a hedgerow which runs parallel with the public footpath to the south of Faenol Bropor farm south of the A55. The field to the north is cattle grazed. To the west and east are woodland parcels.
18	301053	374283	Within a hedgerow bordering a field to the east of Glascoed Nature Reserve. The surrounding fields are sheep grazed.
19	300793	374139	Upon a fence post in the corner of a cattle grazed field north of the Glascoed Road. There is a hedgerow parallel to the fence which has several mature oak trees along its length.
20	300892	373687	Upon a fence post underneath a hawthorn and holly tree south of the Crematorium on the Glascoed Road.
21	301084	373565	Upon a fence post within a hedge which borders a grazed field.
22	301493	373498	Between two mature oak trees on the border of a field to the west of the Gwynt y Mor offshore wind farm Substation.

2.2 Data Analysis

This report refers to 'registrations' or "bat passes"; that is a single sound file captured by an automated detector. It is important to note that registrations do not necessarily relate to the numbers of bats that may be present; a large number of registrations can equally result from one bat passing a detector many times/feeding overhead, or many bats passing at once.

Due to the large dataset (over 195,000 passes) the activity survey data was analysed using Wildlife Acoustics

Kaleidoscope Pro software and the Bats of Europe 5.1.0 auto-id classifier, set to the United Kingdom. This software allows data to be classified automatically with bat species which fit the same call characteristics that each call file provides. While the software is efficient, it is not totally infallible, therefore the following manual checks by an experienced bat worker skilled in bat call identification at SLR were also undertaken as follows:

- All locally rare/previously unrecorded species including greater horseshoe *Rhinolophus ferrumequinum*, serotine *Eptesicus serotinus*, Leislers *Nyctalus leisleri*, barbastelle *Barbastella barbastellus* and Nathusius' pipistrelle *Pipistrellus nathusii* auto-ids. If incorrect, these were manually corrected;
- 5% each of the auto-id results for noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and myotis species. These were not manually corrected if wrong (due to the large number of registrations), but the process enabled verification of the error rate of the software (refer to 2.3.4 for details).
- Due to the difficulties of separating Myotis species from sonograms alone, Myotis calls have not been manually identified beyond genus level;

John Russ (2021)⁵ was used as the main reference text for the above process. When interpreting the data, the following premise was used:

- For the purpose of differentiating common and soprano pipistrelle bat, pipistrelle characteristic calls with a peak frequency between 41.1 kHz and 50 kHz have been classified as common pipistrelle. Above 50 kHz as soprano pipistrelle. Initially, calls with a peak frequency of 41 kHz or less are considered to be Nathusius' pipistrelle (in line with John Russ 2021). However, detailed interrogation of these concluded that most were common pipistrelle, as evidenced by them being isolated passes within a period of common pipistrelle activity, and with a peak above 40kHz (ie still within the range used by common pipistrelle). Therefore in this instance calls were only assigned as Nathusius' pipistrelle if the characteristic frequency was 40kHz or below and in the absence of common pipistrelle calls immediately before or afterward. Pipistrelle registrations may however remain ambiguous, such registrations were instead assigned to "pipistrelle species";
- *Nyctalus* and *Eptesicus* calls can easily be misclassified; particularly those of Leisler's bat (*Nyctalus leisleri*) and serotine (*Eptesicus serotinus*). Due to the similarity of the calls it is not always possible to accurately differentiate between the three species and in such cases, they have been labelled as "big bat" in the analysis.

All data recorded by the detectors was subject to analysis to determine if uncommon species were present. However, for ease of data evaluation between locations, 5 nights per location per month were subject to scrutiny (even where more than 5 nights may have been recorded). The table below details which nights were used - generally the first five per month, but amended if detectors failed to record due to malfunction. Entries with bold text are when less than 5 nights data was obtained (refer to the limitations described in Section 2.3.3 for further details).

⁵ Russ, J. (2021): Bat Calls of Britain and Europe: A guide to species identification, Pelagic Publishing, ISBN 978-1-78427-225-8

Table 2-3
Nights used for Data Evaluation

	April	May	Jun	Jul	Aug	Sept	Oct
1	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
2	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
3	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
4	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
5	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 8 th , 10 th - 11 th	7 th - 11 th
6	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 8 th , 10 th - 11 th	7 th - 11 th
7	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
8	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
9	12 th - 16 th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 8 th , 10 th - 11 th	7 th - 11 th
10	12th - 16th	13 th - 17 th	3 rd - 7 th	6 th - 10 th	2 nd - 6 th	6 th - 10 th	7 th - 11 th
11	20 th - 24 th	20 th - 24 th	13th - 15th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
12	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
13	20 th - 24 th	20th - 21st, 23rd, 26th	10 th - 14 th	14 th - 18 th	10 th - 14 th	13 th - 17 th	14 th - 18 th
14		20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
15	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14th - 15th	14 th - 18 th
16	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th -16 th , 18 th , 20 th
17	20 th - 24 th	20 th - 24 th	13th - 15th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
18	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
19	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	14 th - 18 th	14 th - 18 th
20	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	13 th - 17 th	14 th - 18 th
21	20 th , 22 nd , 25 th	20th	10 th - 14 th	14 th - 18 th	10 th - 14 th	13 th - 17 th	14 th - 18 th
22	20 th - 24 th	20 th - 24 th	10 th - 14 th	14 th - 18 th	10 th - 14 th	13 th - 17 th	14 th - 18 th

2.3 Limitations

The following subsections detail the survey constraints encountered. None are considered to significantly affect the conclusions of this report; the data gathered are sufficient to meet the aims set out at Section 1.3.

2.3.1 Desk Study

Desk study data are unlikely to be exhaustive, especially in respect of species, and are intended mainly to set a context for the study. It is therefore possible that important or protected species not identified during the data search do in fact occur within the study area. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the areas, which were subject to field survey.

2.3.2 Field Surveys: Roost Assessment

Minor constraints were noted on a number of surveys, such as trees being unsafe to climb, spells of rain, low temperatures, access issues and curious livestock. These are noted in detail in the tables at Appendix 2 and 3. On the few occasions where the limitation was considered to have significantly affected the survey, an additional visit was subsequently made.

The method proposed for roost assessment is based upon appropriate and proportionate techniques to inform the EIA, but it is possible, indeed probable that that small or occasionally used roosts may have been missed during the tree surveys. To be clear, the proposed method does not seek to pinpoint every small roost; this is because such roosts are highly dynamic, with bats using a suite of potential roost features in any given season (refer to Appendix 1 for details).

2.3.3 Field Surveys: Activity Survey

Of the 22 detectors deployed, seven failed to record for the full 5 nights per month at some point during the full monitoring period. This was due to a number of factors, which are summarised below:

- Detector 14 failed on the first deployment recording no files, despite having just been returned from servicing;
- Periods of wet weather affected some detectors' microphones, such that they failed intermittently or just picked up noise;
- Batteries on occasion lasted less than 5 nights when combined with excessive noise recordings caused by wet or windy weather; and
- Software/electrical faults resulted in units failing to boot up correctly.

Table 2-4 gives details of the 7 detectors which failed to record successfully.

Table 2-4
Anabat Detectors: Failed Recordings

Detector number	Month	Details
10	April	Files recorded however all noise files, with no bats. Microphone damaged.
11	June	3 nights recorded – suspected bad weather causing microphone fault. Only noise files on recorded nights.
13	May	4 nights recorded – suspected bad weather causing microphone fault. Only noise files on recorded nights.
14	April	Failed recording producing no files. Electronic/software failure.
15	Sept	2 nights recorded – several error messages including microphone error, SD card writing too slow and battery failure.
17	June	3 nights recorded – problem with SD card writing.
21	May	1 night recorded - Electronic/software failure.

Whilst the losses of data outlined above are unfortunate, in our experience some data loss is inevitable when using equipment of this nature over such long time periods and the levels of data loss are not unusual. The data obtained are extensive and considered sufficient to provide a robust baseline dataset for the period April to October.

2.3.4 Data Analysis

It should be noted that Kaleidoscope Pro filters only give an estimate of the bat activity in a dataset. Faint or poor-quality bat sonograms can be missed if they are rejected by the noise filter. However, this is considered unlikely to affect the results significantly.

As noted in section 1.4.2, a 5% manual check was made against the auto-id outputs to determine the error rate of the software in this instance. Table 2-5 shows the result of the check.

Table 2-5
Results of 5% auto-id check

Species	% incorrectly classified by auto-id	Note
Noctule	14	The mis-identified calls were usually noise, and occasionally pipistrelle social calls
Brown long-eared bat	31	The mis-identified calls were usually pipistrelle social calls
Common pipistrelle	<0.1	-
Soprano pipistrelle	<0.1	-
Myotis	0	-

The above result has been used when evaluating the results for these species, and as such is not considered to significantly affect the conclusions.

2.3.5 Summary

In summary, no significant survey limitations were encountered during the bat survey; the level of survey was considered to be sufficient to meet the aims set out in Section 1.3 above.

3.0 Results

3.1 General Species Summary

Based on data gathered during the field survey and records received from Cofnod, at least ten bat species have been recorded within the study area, and are listed below:

- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Greater horseshoe bat;
- Brown long-eared bat;
- Noctule bat;
- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Daubenton's bat *Myotis daubentonii*;
- Natterer's bat *Myotis natterri*;
- Whiskered/Brandt's bat agg. *Myotis mystacinus/brandtii* agg.; and
- *Myotis* species.

Most of these records are for bats on the wing and do not relate to roosts, however where a roost has been recorded, either historically or during field surveys in 2021, it is identified on Figures 2 and 3. Bat species recorded roosting with the survey area are limited to:

- Common pipistrelle;
- Soprano pipistrelle; and
- Noctule;

The survey area includes numerous habitats that are suitable for use by commuting and foraging bats, such as hedgerows, woodland edges, watercourses and wetlands. Full details of the habitats present at the survey area are included in the habitat report appended to the ES⁶.

⁶ For a copy of the Habitat and Hedgerow Survey, June 2021 refer to AyM Offshore Windfarm Environmental Statement Volume 5, Annex 5.2.

3.2 Tree Roost Assessment

Full details of the surveys conducted at each tree are contained in the tables at Appendices 2 and 3, and shown on Figures 2 and 3. In summary, there are 55 trees in the survey area with moderate or high potential to support roosting bats and which may be affected by the scheme. Additional trees with negligible or low potential to support bats are also present, but are not dealt with in detail in this report since they are not a critical part of the overall potential roost resource.

Table 3-1
Tree Roost Assessment Summary: Moderate and High Potential Trees

Tree no on plan	Tag no.	Final Tree Category (ie after all surveys complete)
4	226	H
6	225	M
7	223	M
8	222	M
12	219	M
13	220	M
16	228	M
17	230	H
19	232	M
21	235	Roost
22	240	H
23	239	H
25	233	M
27	238	Roost
32	283	M
33	289	M
35	285	M
39	267	M
49	282	M
50	272	H
52	271	M
55	266	M
57	281	M
58	265	M
59	274	M
60	280	M

Tree no on plan	Tag no.	Final Tree Category (ie after all surveys complete)
61	264	H
62	279	M
63	264	M
64	278	Roost
68	262	Roost
70	276	M
71	209	M
72	267	M
73	265	M
75	211	M
79	251	H
80	242	M
81	250	Roost
86	249	M
91	258	M
95	245	M
97	244	M
99	256	M
101	254	M
103	243	M
105	299	M
107	297	M
108	296	M
110	294	M
111	293	M
113	291	M
117	299	M
128	286	M
131	284	M

Roosting bats were confirmed at tree numbers 21, 27, 64, 68 and 81 which are further described below.

- Tree 21 - During the tree climbing bat survey on 27.07.21 a pipistrelle bat was found in a rot hole on the southwest aspect of the trunk, about 1.5m above ground. Droppings retrieved from the entry point were sent for DNA testing and confirmed to be those of a soprano pipistrelle (refer to Appendix 4 for lab test

result). No roosting was recorded during dusk surveys on 22.07.21, 04.08.21 or 07.09.21. Considered to be soprano pipistrelle dayroost.

Photograph 3-1
Tree 21, Roost Feature



- Tree 27 –During a dawn re-entry survey on 23.07.21 at least two bats were observed at 46 minutes prior to sunrise, and presumed to enter a small rot hole around 3m high on the trunk. They were not echolocating but assumed to be soprano pipistrelle based on them being the size and flight characteristics of pipistrelle species and that other bats recorded during the survey were of this species based on sonograms recorded. No bats were found to be present, and no evidence of roosting was found during the tree climb survey on 27.07.21 or a dusk emergence survey on 04.08.21. Considered to be a soprano pipistrelle dayroost.

Photograph 3-2
Tree 27, Roost feature



- Tree 64 – At dawn on 15.07.21 at least 10 common pipistrelles (species verified through sound analysis) returned to roost at two rot holes on the trunk of the tree, on the east/southeast aspect. The climbing inspection undertaken on 22.07.21 recorded no evidence of a roost. During the dawn survey on 29.07.21 a noctule was suspected returning to roost, the entry point uncertain. Assessed as common pipistrelle maternity roost (potentially a satellite roost) and noctule dayroost.

Photograph 3-3
Tree 64, Roost Feature



- Tree 68 – At dawn on 15.07.21 one common pipistrelle was suspected to return to roost, entry point uncertain. Emergence/re-entry surveys on 22.07.21 and 09.09.21 found no evidence of roosting. Assessed as common pipistrelle dayroost.

Photograph 3-4
Tree 68



- Tree 81 – Dawn survey on 22.07.21 recorded no evidence of roost. The climbing inspection on 26.07.21 observed a single pipistrelle bat in a small cavity at the edge of an old pruning cut around 2.5m high on the west aspect of the trunk. The bat was confirmed as a pipistrelle using photographs taken on an endoscope however due to a lack of droppings available for collection the bat has not been identified to species level. Dusk survey on 04.08.21 recorded no evidence of roost. Assessed as common or soprano pipistrelle dayroost.

Photograph 3-5
Tree 81



3.3 Activity Survey: Transects

Full details of the transect surveys conducted each month from April to October 2021 are included at Appendix 5. The main purpose of walked transects is for surveyors to observe bat behaviours and numbers of bats (ie those elements that an automated detector cannot). In summary, the surveyors usually saw one or two bats at any one time, and only saw three (common and soprano pipistrelles) on three occasions (Transect 2 in May, Transect 3 in July and Transect 2 in September). On no occasions was a roost detected or suspected, all behaviours were foraging and commuting related, usually along a hedgerow, woodland or watercourse. Since only low numbers of bats were observed or recorded, it has not been possible to discern the presence of any well used flight lines.

The data recorded on the Batlogger M detectors was subject to analysis and the results are summarised in the tables below. Table 3-2 shows the total bat passes for each transect route when all recording nights (ie 7 per transect) throughout the year are combined.

Table 3-2
Total bat passes per transect, by species, all months combined

	Common pipistrelle	Soprano pipistrelle	Brown long-eared bat	Nathusius' Pipistrelle	Noctule	Myotis sp	Big Bat	Lesser horseshoe bat
T1	200	217	4	0	63	7	0	0
T2	229	161	0	1	22	4	1	0
T3	129	205	4	0	24	19	1	0
T4	207	484	4	0	7	2	0	3

Due to the differences in detectability between species (noctule is for example a very loud bat, brown long-eared bats are very quiet and most often missed) it is important not to compare the number of passes between species in the above table. It does however serve to show that common and soprano pipistrelle, noctules and Myotis species were detected at all transects, brown long eared bats at 1, 3 and 4, Nathusius' pipistrelle at 2 and lesser horseshoe bat at transect 4 only.

Additional evaluation of the transect data has not been considered worthwhile and therefore has not been undertaken, due mainly to the significantly greater amount of sound data gathered via automated detectors which is presented below.

3.4 Activity Survey: Automated

3.4.1 Overview

The data gathered during the automated activity survey amounts to a very large dataset, which has been retained electronically. The data has been used to answer the following questions:

- 1 What species are present at each location?
- 2 Where is greatest and least bat activity (all species combined) recorded?
- 3 For noctule, lesser horseshoe bat, greater horseshoe bat, Nathusius' pipistrelle and Myotis species where is greatest and least bat activity (by species) recorded?

For the third point, these species have been selected for more focussed investigation due to their local rarity and/or reliance on trees for roosting and/or hedgerows for commuting. Remaining species (common pipistrelle, soprano pipistrelle and brown long-eared bat) are considered to be sufficiently well addressed by the "all species" points numbers 1 and 2 above, and also given the auto-id errors which misidentify a small proportion of pipistrelle calls as brown long-eared bats.

3.4.2 Species present at each location

The following species were recorded at all locations:

- Noctule;

- Common pipistrelle;
- Soprano pipistrelle;
- Lesser horseshoe bat; and
- Myotis species - Due to difficulties in separating myotis species by call parameters alone, they are dealt with as a genus in this report. However, it is worth noting that the auto-ID software identified four separate species, these include:
 - Brandt's bat;
 - Whiskered bat;
 - Daubenton's bat; and
 - Natterer's bat.

Additionally;

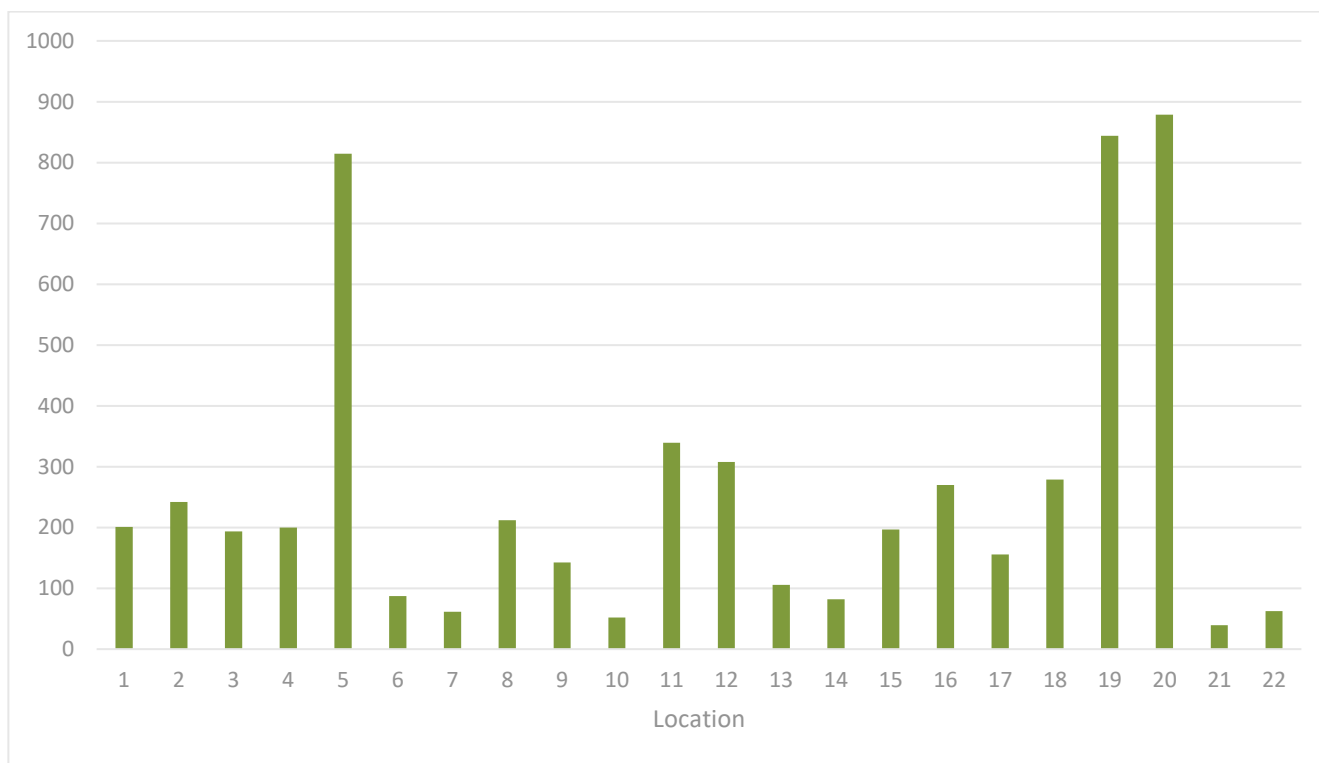
- Nathusius' pipistrelle were recorded at locations 3, 5, 6, 9, 10, 11, 15, 18 and 22;
- Brown long-eared bat were recorded at all locations except number 7;
- Greater horseshoe bat were recorded at location 20 (single pass only).

3.4.3 Activity by location (all species combined)

At all locations there were no nights with no bat activity at all. Figure 3-1 shows the average number of bat passes recorded per night at each location. The trends shown on Figure 3-1 are primarily as a result of common and soprano pipistrelle bat activity, but also include all other bats species, including calls that cannot be identified to species but are demonstrably a bat (rather than an insect for example).

As is evident, Locations 5, 19 and 20 had the highest average number of bat passes per night whilst remaining locations show relatively low average bat passes per night in comparison.

Figure 3-1
Bat activity (all species combined) by location: average calls per night



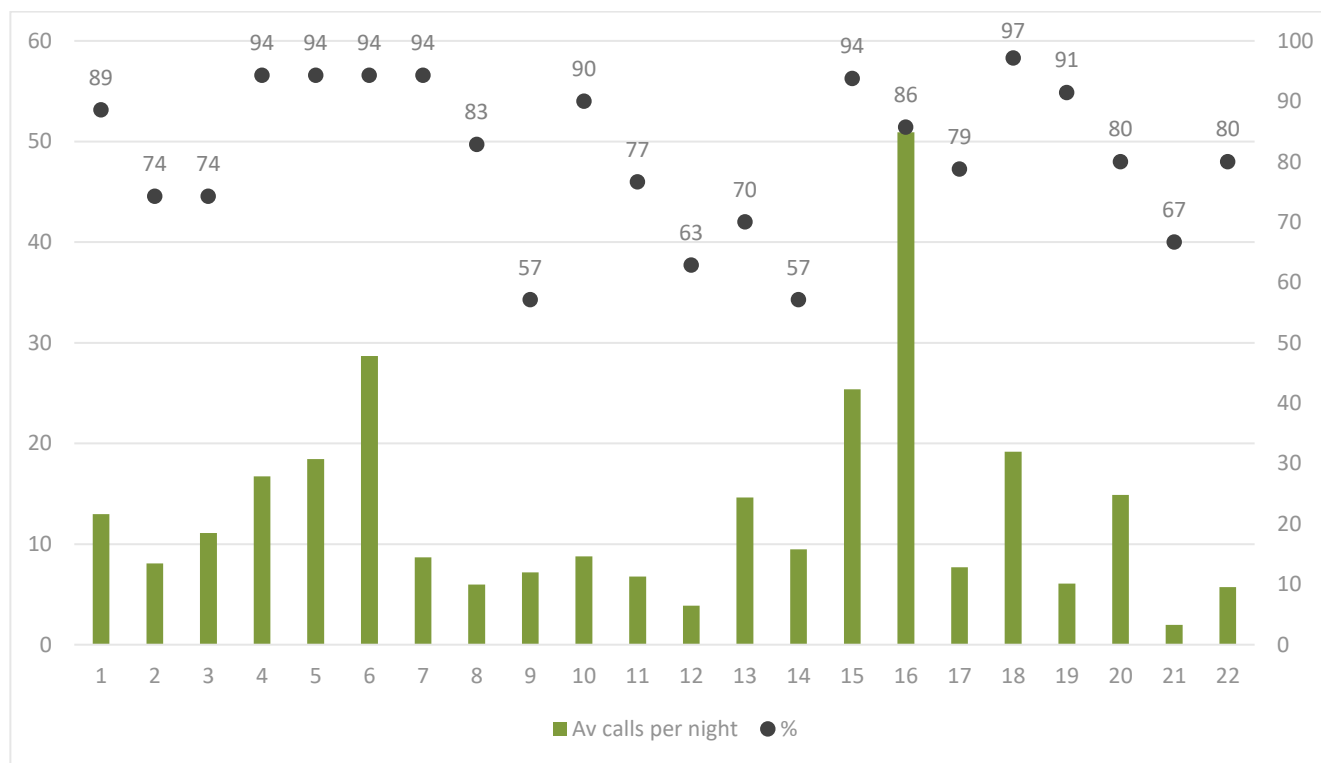
The high number of average calls per night at locations 5, 19 and 20 was further investigated within the data and was found to be due to high numbers of passes (>1000) of common and soprano pipistrelle bats on relatively few nights during June – September. However, common and soprano pipistrelle were recorded in all months and at all locations.

As already noted, the manual check of a 5% sample has determined that brown long-eared bat data includes 31% calls misidentified by the software. Altogether (ie at all locations, all nights) a total of 909 passes auto-identified as brown long-eared bat are included in the dataset used to create the graph above. Approximately 627 of these are therefore considered to be accurate. The pattern of activity broadly follows that shown in the graph above, albeit at significantly lower values. Given the relatively low numbers of calls by this species and the difficulties in recording it (its call characteristics are such that it is easily missed by detectors) further detailed analysis has not been undertaken.

3.4.4 Noctule

Figure 3-2 shows the average number of noctule passes recorded per night at each location. The figure also shows the percentage of recorded nights when noctules were detected.

Figure 3-2
Noctule activity by location



The graph shows that the highest level of noctule activity was recorded at location 16, with an average of approximately 51 passes registered per night of recording. Interrogating the data for location 16 in more detail shows that this peak is largely attributable to activity in April and June. 12th June 2021 has a significantly higher amount of recorded activity than any other night, with 861 noctule passes registered. Activity levels are also relatively high at location 15; the data shows a similar pattern to that of location 16 with the most activity recorded in June.

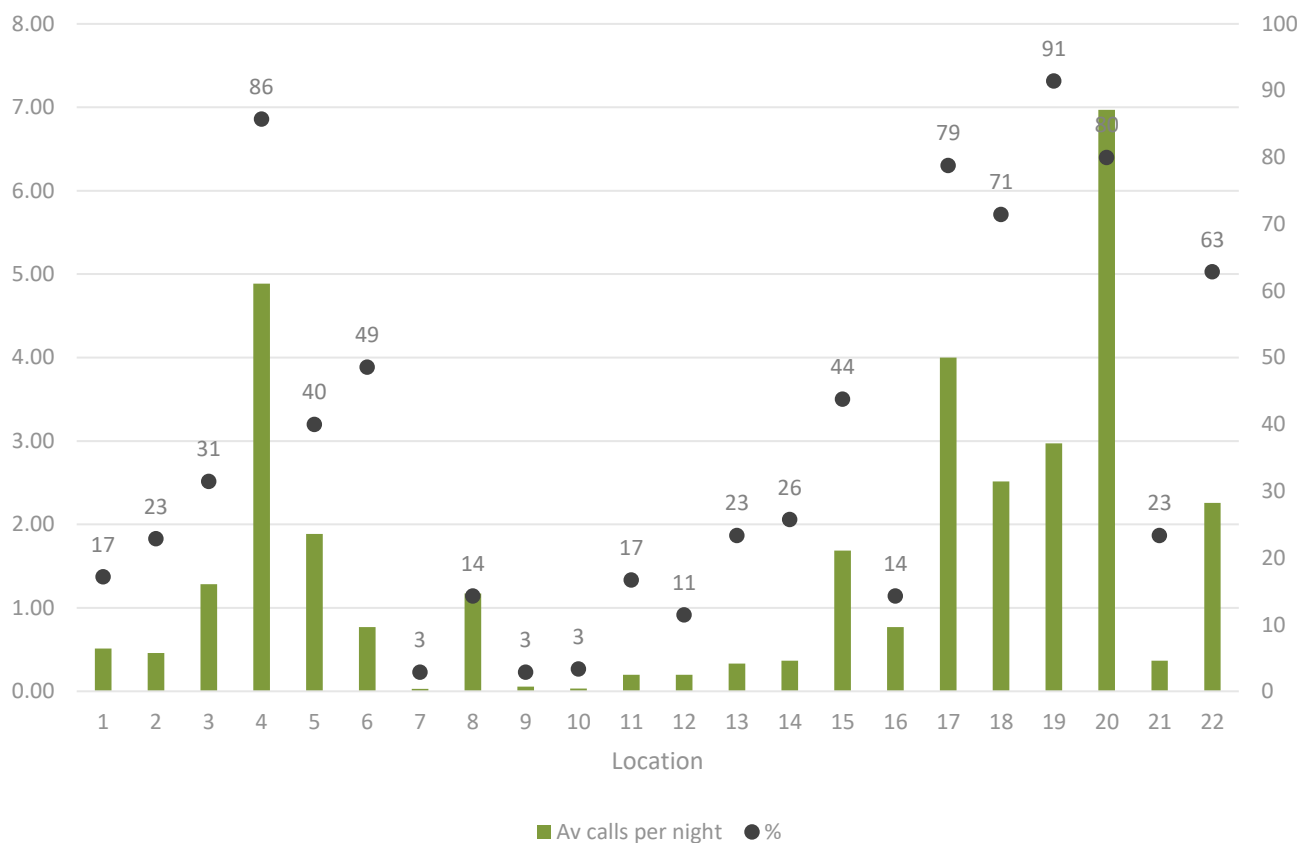
Location 6 shows the second highest activity for noctules, with an average of approximately 29 registrations per night. Higher levels of activity are recorded April – July and less call are registered in the latter part of the year.

It is apparent that noctule are regularly recorded at most locations across the survey area, with 12 of the locations recording them on at least 80% of nights. This is perhaps most notable where the average number of calls per night seems relatively low in comparison, such as locations 4-7, 18 and 19.

3.4.5 Lesser Horseshoe Bat

Figure 3-3 shows the average number of lesser horseshoe passes recorded per night at each location. The figure also shows the percentage of recorded nights when lesser horseshoe bats were detected.

Figure 3-3
Lesser horseshoe bat activity by location



Lesser horseshoe bat activity was recorded at all locations throughout the season. The figure also shows the percentage of recorded nights when lesser horseshoe bats were detected.

The greatest amount of lesser horseshoe bat activity was recorded at locations 4 and 17-20 as evidenced by the high percentage of nights when presence was recorded and highest average calls per night. Very little evidence of the species was noted at locations 7, 9 and 10, close to the River Clwyd.

The data for the locations where most activity was further scrutinised to determine if there were any temporal trends. The months with the highest numbers of passes per night were as follows:

- Location 4: The highest average calls per night are recorded in October, passes are recorded on all five nights with a range between 6 on the 8th October and 21 on the 11th October. Further details are shown in Table 3-3 below.

Table 3-3
Location 4: lesser horseshoe bat passes

Month	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	5	21	6	22	20	24	73
Average calls per night	1.0	4.2	1.2	4.4	4.0	4.8	14.6

- Location 17: Across the season average calls per night is somewhat varied with peak counts on individual nights in June, September and October. The average passes per night are highest in June, where the detector only successfully recorded for three nights. Refer to the table below.

Table 3-4
Location 17: lesser horseshoe bat passes

Month	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	11	17	33	1	18	25	27
Average calls per night	2.2	3.4	11	0.2	3.6	5	5.4

- Location 18: Average calls per night are higher at the start of the survey season, but as with Location 17, the highest average calls per night is in June. After this, passes occur in low numbers and less frequently, some nights recording no passes. Refer to the table below.

Table 3-5
Location 18: lesser horseshoe bat passes

	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	12	15	39	5	4	5	8
Average calls per night	2.4	3	7.8	1	0.8	1	1.6

- Location 19: During the survey season, similar average calls per night were found in April, June, July and August. Average calls per night peaks in October; this is not attributed to a single night, passes are generally higher each night of recording when compared to other months. Refer to the table below.

Table 3-6
Location 19: lesser horseshoe bat passes

	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	15	4	19	12	14	13	27
Average calls per night	3	0.8	3.8	2.4	2.8	2.6	5.4

- Location 20: Highest average calls per night occurred in April, September, and October, for each of these months, passes were recorded for each of the five nights with counts varying from as little as 3 passes on 13th Sept to as many as 35 passes on 24th April (peak for the survey season). Refer to the table below.

Table 3-7
Location 20: lesser horseshoe bat passes

	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	76	7	22	2	13	55	69
Average calls per night	15.2	1.4	4.4	0.4	2.6	11	13.8

3.4.6 Greater Horseshoe Bat

A single pass by greater horseshoe bat was recorded at Location 20 on 18th September at 01:49. It is a good quality sequence of calls and the species identification is considered certain. Since this is a notable species to record in this locality, the sonogram is included below for reference.

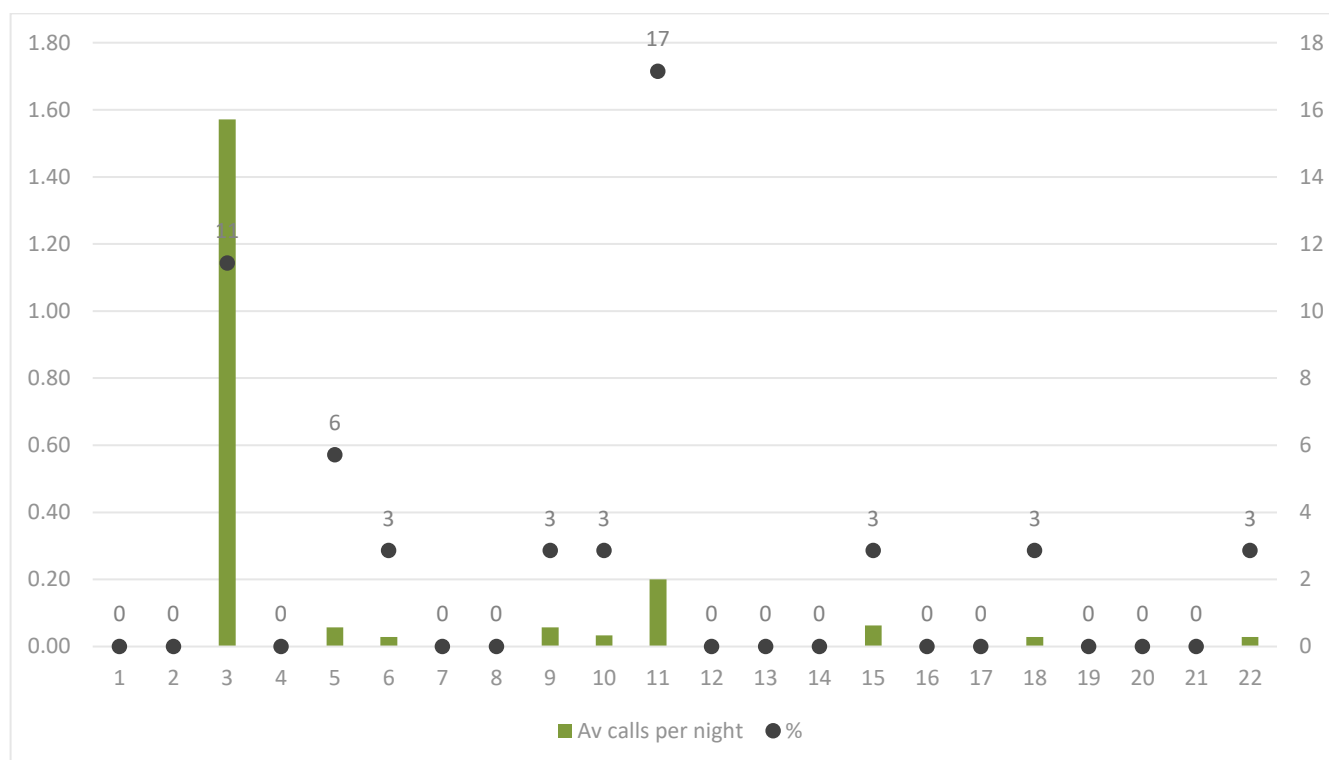
Figure 3-4
Greater horseshoe bat sonogram (Location 20)



3.4.7 Nathusius' Pipistrelle

Figure 3-5 shows the average number of passes per night of recording for Nathusius' pipistrelle at each location. The figure also shows the percentage of recorded nights when Nathusius' pipistrelle were detected.

Figure 3-5
Nathusius' pipistrelle activity by location

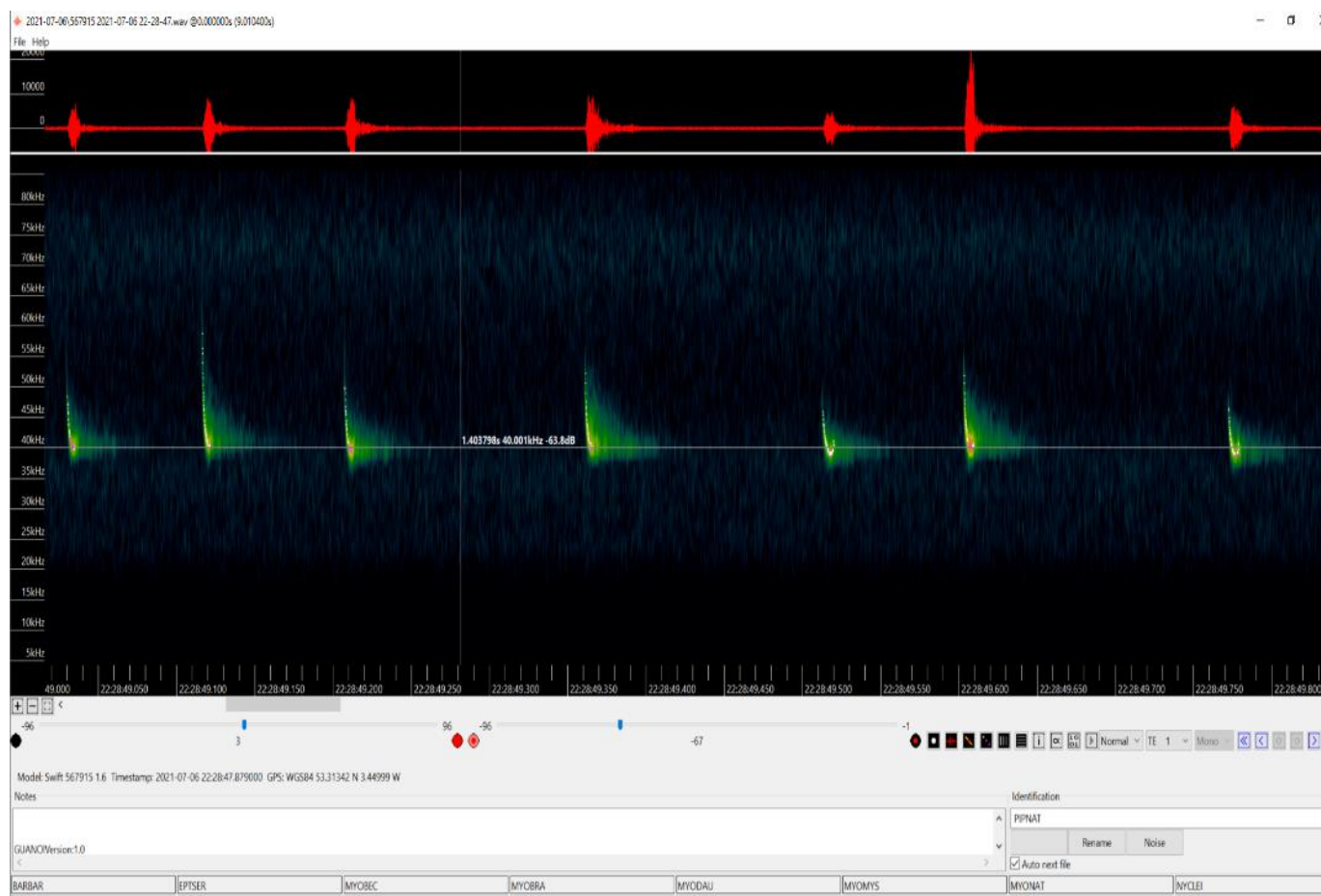


Limited activity by Nathusius' pipistrelle was recorded at 9 of the 22 locations, in most cases this being just one or two passes across the recording period.

The highest level of overall activity for this species is at Location 3; it was recorded on two nights in June, one in July and one in September. However, the relatively high average calls per night is a result of increased activity on a single night - 6th July - when a total of 46 passes within about a 15 minute period (22:27-22:41) were recorded. It is also worth noting that additional data obtained on the 12th July, and which has not been used as part of the dataset for comparison between locations, included a further 46 calls by this species, also at around the same timeframe 22:19-22:39.

As Nathusius' pipistrelle is a notable species to record in this locality, a representative sonogram is included below for reference; it is from Location 3 on the 6th July.

Figure 3-6
Nathusius' pipistrelle sonogram (Location 3)



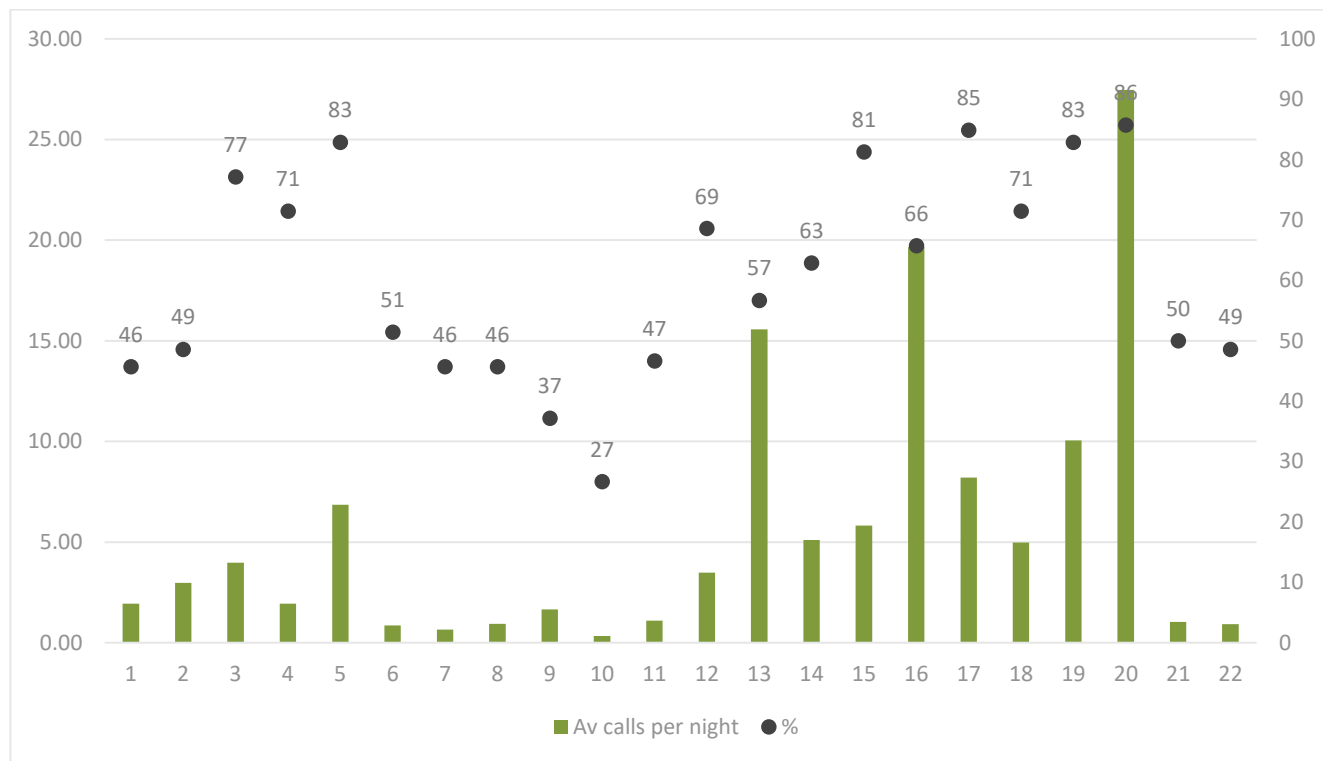
Locations 5 and 11 also recorded relatively more Nathusius' pipistrelle activity than other locations, in terms of average calls per night and percentage of nights with calls. The species was recorded at Location 5 for two nights only, and at Location 11 for six nights (five in July, one in September), but a single pass each time.

As described in Section 2.2, discriminating between common pipistrelle and Nathusius' pipistrelle can be difficult, and at Location 9 in particular there were calls auto-identified as Nathusius' pipistrelle, a relatively large proportion of which were later assigned to "Pipistrelle species" as they could not be confidently discriminated between. It is considered possible that Nathusius' pipistrelle are more frequently present at Location 9, and/or with a greater level of activity than is evident in the above graph.

3.4.8 Myotis Species

Figure 3 5 shows the average number of passes per night of recording for Myotis species at each location. The figure also shows the percentage of recorded nights when Myotis species were detected.

Figure 3-7
Myotis spp. activity by location



As shown in Figure 3-7 Myotis species were regularly recorded at most locations, with the exception of location ten where it was present on less than one third of recorded nights. It was most regularly recorded at locations 5, 15, 17, 19 and 20, as evidenced by the high percentage of nights when the species was detected. Highest average number of calls were recorded at Location 20, with locations 13 and 16 also being relatively high compared with other locations surveyed.

At Location 20, the high average is due primarily to registrations recorded in September, with a nightly average of approx. 145 over 5 nights. Refer to the table below for details. The majority of the registrations (506) were auto-identified as that of a whiskered bat, the remainder auto-identified as Brandt's, Daubenton's and Natterer's.

Table 3-8
Location 20: Myotis species calls

	Apr	May	Jun	Jul	Aug	Sep	Oct
Total calls	5	3	19	8	34	724	168
Average calls per night	1	0.6	3.8	1.6	6.8	144.8	33.6

Location 16 and 13 also show relatively higher levels of activity. At Location 13 activity was primarily recorded in July (auto-identified the majority as Natterer's bat) and August (auto-identified as whiskered bat) in equal proportion. At Location 16 most of the activity occurred on 10th June (305 passes, auto-identified as whiskered), with smaller peaks also in August (auto-identified as whiskered) and September (auto-identified as Daubenton's and Natterer's).

4.0 Discussion & Evaluation of Results

The discussion below draws upon all desk study and survey information available in order to present a reasoned understanding of the bat species populations present in the survey area.

4.1 Noctule

4.1.1 Roosting

Noctule is a large, high flying bat species that most commonly roosts in trees. A noctule day roost was recorded at Tree 64 during July 2021. In addition, an historic roost was present in a tree south of the National Grid Bodelwyddan sub station, confirmed via data from Cofnod.

Noctule roosts are considered likely to be present in the vicinity of the scheme (including potentially suitable trees within the survey area), at locations other than Tree 64, based upon the cumulative information available, as follows:

- The automated survey data showed that there was a particularly high amount of noctule activity at Location 16 which is situated within the edge of Prince's Gorse, a small parcel of woodland immediately north of the A55, with the highest levels (measured by bat passes per night) found in June. High levels of activity were also noted at Location 15, within woodland a short distance north west of Location 16.
- During the dawn survey of Trees 29, 30, 31 and 32 (about 350m west-south-west of Location 16) on 23rd July 2021 four noctules were noted to pass overhead commuting west to east within 5 minutes of each other 55-60 minutes before sunrise.
- The second highest level of activity for noctules was found at Location 6; in the centre of a small woodland parcel, made up of young recently planted trees.
- During a dusk survey of Tree 6 (north east of Location 6) on 2nd August 2021 the surveyor noted noctule bats commuting southwards over the fields.

4.1.2 Foraging

Noctules forage widely in a range of habitats including out in the open, over trees and often associated with water. The Core Sustenance Zone (CSZ)⁷ is 4km. The species was recorded regularly at all locations across the site. The mosaic of mature trees, watercourses, agricultural land and small woodlands present in the survey area is considered highly suitable for use by this species.

⁷ "the area around a communal bat roost which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost" Collins, J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust. London

4.2 Lesser horseshoe bat

4.2.1 Roosting

Lesser horseshoe bats roost within buildings, structures, caves and mine adits and prefer to fly directly into the roost space. They are not known to roost in trees. There are five confirmed roosts within buildings, within the 2km Study Area but outside the 100m survey area, towards the northern end of the scheme at Graig Fawr and within Bodrhyddan Estate (closest to Location 3-6), plus an additional two roosts to the south of the scheme, again outside the 100m survey area, within a cave and building (closest to Locations 20 – 22). Potentially suitable roost buildings and structures are present across the 2km Study Area but are considered most numerous in the area around Graig Fawr and southwards from the A55 (ie in areas where rock outcrops are more regular and old farm buildings are more frequent).

The activity data could be interpreted as demonstrating the presence of a hibernation site relatively close to Location 20, since activity there was greatest in April, September and October, and/or close to Location 4 where activity was greatest in October. This may relate to bats travelling to/from known roost locations that occur nearby, or to previously unrecorded site(s).

Activity data from locations 17 and 18 is more suggestive of a summer colony relatively nearby, since peak calls per night were recorded in June. However, there are no known maternity colonies within 2km of these locations.

4.2.2 Foraging

Lesser horseshoe bats have a CSZ of 2km and prefer to forage at broadleaved woodland well connected by commuting routes such as hedgerows and woodland edges. The species is considered reluctant to cross open spaces due to its low flying height in such situations. The recording locations at 3, 4, 20 and 21 fall within the CSZ of a known lesser horseshoe bat roost.

The woodland and hedgerow networks at the northern and southern extremes of the survey area (traversed by Transect 1 and Transect 4) are considered to be of most value to the local lesser horseshoe bat population, given the proximity of known roosts and the pattern of activity observed via the automated detectors. Hedgerows and woodlands in these areas comprise foraging and flightlines used by lesser horseshoe bats, with the species most frequently recorded at locations 4, 17-20 and 22. These locations may be important to the maintenance of colonies that occur within 2km.

4.3 Greater Horseshoe

4.3.1 Roosting

As with lesser horseshoe bats, this species uses buildings and underground structures and prefers to fly directly into the roost. It is not known to roost in trees but may use trees as a feeding perch.

There are no known roosts for this species within the Study Area. The nearest known records occur just over 2km south of the southern end of the scheme, in the vicinity of the Afon Elwy where there are numerous large old buildings as well as limestone caves⁸ which may be suitable. It has also been recorded just west of Abergele

⁸ Information available on North Wales Mammal Group website
<http://www.northwalesmammalgroup.com/mammal-atlas.html>

to the west and at Tremeirchion to the east.

4.3.2 Foraging

Greater horseshoe bat has a CSZ of 3km and its preferred foraging habitats are ancient woodland and cattle grazed pastures. The species tends to forage on the boundaries of pastures and woodland, tree lines or tall thick hedges. The species is noted to fly close the field boundaries and reduce flying height when in the open.

There are no known roosts within 3km of the scheme. A single pass by this species was recorded at Location 20 in September. Therefore, whilst the habitats in the south of the site (traversed by Transect 4) are potentially suitable for use by foraging greater horseshoe bats, the lack of regular evidence, or of peaks of higher activity suggests the area is not a well-used resource by the local population at the time of survey.

4.4 Nathusius' Pipistrelle

4.4.1 Roosting

Nathusius' pipistrelle is a relatively large pipistrelle bat that roosts in buildings, hollows in trees, crevices in cliffs, walls and caves. There are no known roosts within the study area. The nearest records are from Conwy town, around 20km to the west⁹.

During the activity survey Nathusius' pipistrelle was recorded most regularly at location 3 and 11, but never at levels great enough, or with sufficient regularity, to suggest a colony occurred nearby. However, the recording of 46 passes on one night at Location 3 may indicate that a bat/small numbers of bats roosted relatively nearby in July, certainly closer than the nearest known roost mentioned above. Given this species has been recorded using trees for roosting, it is possible a roost could have occurred within the survey area, although none were recorded during the tree roost surveys.

4.4.2 Foraging

This species' foraging is associated with riparian habitats, broadleaved and mixed woodland, as well as parkland and has a CSZ of 3km.

There are no known roosts within 3km of the scheme. During the monitoring period there were low numbers of Nathusius' pipistrelle passes recorded at 9 of the 22 locations: this species has a call that is readily detected and the low number of records is considered to reflect an absence of bats for the majority of locations.

The most notable result was at Location 3 where 46 registrations were recorded on 6th July. Whilst this location is ideal for use by Nathusius' pipistrelle – it comprises a willow dominated hedgerow over a ditch, with woodlands, ponds and fen nearby, the same could be said for Location 4 which is just south of Location 3 where no evidence of the species was found. On the transect surveys just one Nathusius' call was recorded on the route of Transect 2, close to the River Clwyd.

It is considered most likely that Nathusius' pipistrelle occasionally pass through the site, and in particular along routes adjacent to/passing rivers, ponds, ditches or streams (all locations where the species was recorded match this, with the exception of location 22). Any such bats would be expected to stop to forage upon abundant

⁹ Information available on North Wales Mammal Group website
<http://www.northwalesmammalgroup.com/mammal-atlas.html>

sources of prey, this may in turn be related to invertebrate emergence events. The lack of regular evidence, or of peaks of higher activity suggests the survey area is not a well-used resource by the local population at the time of survey.

4.5 Myotis Species

4.5.1 Roosting

No evidence of a roost for a Myotis species of bats was found during the 2021 surveys. However, within the wider 2km Study Area there is a record for a Daubenton's bat roost south of Rhyl, a Myotis bat roost (whiskered or Brandt's bat) at St Asaph and a Natterer's bat roost close to Glascoed Farm at the south of the study area.

During the activity survey Myotis species were regularly recorded at most locations, with the exception of location ten where it was present on less than one third of recorded nights. At Location 20, there was a peak in activity in September, with a nightly average of approx. 145 over 5 nights; the majority of the registrations were auto-identified as that of a whiskered bat and given the number of registrations so classified, this is considered likely to be accurate. Similarly, a relatively high number of registrations auto-identified as whiskered bat were recorded on a single night (June 10th) at Location 16. This high level of activity is considered to indicate the presence of a whiskered bat roost within a relatively short distance of those locations (<1km), at those times. This species is known to roost within trees as well as buildings, and it remains possible that a roost was present within the survey area, although no roosts were recorded during the surveys.

4.5.2 Foraging

Whiskered/Brandt's bat tend to forage within mixed woodland and riparian vegetation and have a CSZ of 1km, Natterer's bats use semi-natural woodland, tree lined river corridors and ponds and have a CSZ of 4km, Daubenton's bat primarily forages over water, but is known to forage in woodland also. Daubenton's have a CSZ of 2km.

The results of this survey show a trend towards higher levels of Myotis activity in the southern half of the survey area. It was most regularly recorded at locations 5, 15, 17, 19 and 20 with the highest average number of calls were recorded at Locations 13, 16 and 20. The mosaic of mature trees, watercourses, agricultural land and small woodlands present across the survey area is considered highly suitable for use by this species group.

The activity data may point toward the existence of an autumn swarming site (Myotis species gather in autumn at caves and similar features) relatively close to Location 20, given the prolonged higher than usual activity there in September, and to a lesser extent October. This could relate to the cave roost historically recorded at Glascoed, or another underground site nearby. No potentially suitable hibernation roosts were identified within the 100m survey area.

4.6 Common pipistrelle & soprano pipistrelle

4.6.1 Roosting

Common and soprano pipistrelle bats are crevice dwelling bat species and will utilise a wide range of roost types, including buildings and trees. They typically are not known to use underground sites. Desk study information confirms that common and soprano pipistrelle bat roosts have previously been recorded within the 2km study area in buildings at Prestatyn, Graig Fawr, Rhuddlan, St Asaph and Bodelwyddan.

Five roosts were confirmed, at five trees, during the 2021 surveys follows:

- one common pipistrelle maternity colony (Tree 64) and one day roost (Tree 68);
- two soprano pipistrelle day roosts (Tree 21 and 27); and
- one common or soprano pipistrelle day roost (Tree 81).

These roosts are considered to be of low conservation significance¹⁰, since they comprise small numbers of widespread species that are locally and nationally common.

The activity data also suggests that roosts may also be present close to Locations 5, 19 (which is close to Trees 64 and 68) and 20 since at each of these there were occasionally very high numbers of common or soprano pipistrelle passes during June – September.

4.6.2 Foraging

Common pipistrelle has a CSZ of 2km and soprano pipistrelle of 3km. Both these species use a wide range of habitats, though soprano pipistrelles will tend to select riparian habitats over other habitat types available. All the recording locations are within the CSZ of at least one common or soprano roost.

Both species were recorded in all months at all locations. The mosaic of mature trees, watercourses, agricultural land and small woodlands present across the survey area is considered highly suitable for use by this species group.

4.7 Brown long-eared bat

4.7.1 Roosting

Brown long-eared bats roost in trees, buildings and underground sites. Desk study has confirmed a roost was previously recorded within a building at the southern extreme of the study area, close to Cefn Meriadog.

No evidence of a roost for this species has been discovered during the 2021 surveys, based upon tree inspections or inferred from activity survey data.

4.7.2 Foraging

This species' foraging is strongly associated with tree cover, it prefers woodland with a cluttered understorey but will also use hedgerows. It has a CSZ of 3km. Recording locations 17 – 22 are within the CSZ of the known roost.

During the transect surveys, presence was found along the routes of transect 1, 3 and 4 but in low numbers, just 4 registrations across the survey season on each route. Brown long-eared bat was also recorded at all recording locations except Location 7.

Due to the difficulties in detecting this species, it is difficult to draw firm conclusions about the specific locations which may be of most value. It is considered highly likely that brown long-eared bats pass through the site, but are most likely to forage within the small woodlands, rather than hedgerows or open habitats that dominate the

¹⁰ As per Figure 4 of English Nature Bat Mitigation Guidelines, January 2004.

majority of the area.

4.8 Bat Assemblage/Summary

Three species of bat are confirmed to roost in the survey area:

- Common pipistrelle
- Soprano pipistrelle; and
- Noctule.

At least a further seven species have been recorded in the survey area and are considered therefore to roost within a relatively short distance of the survey area (between 1km and 4km, depending on the CSZ of the species involved). Several of these species are known to roost in trees and therefore there is considered to be a possibility of a roost being present within the survey area, either currently (i.e. a roost that was undetected during the surveys) or in future. This includes Nathusius' pipistrelle and whiskered bat.

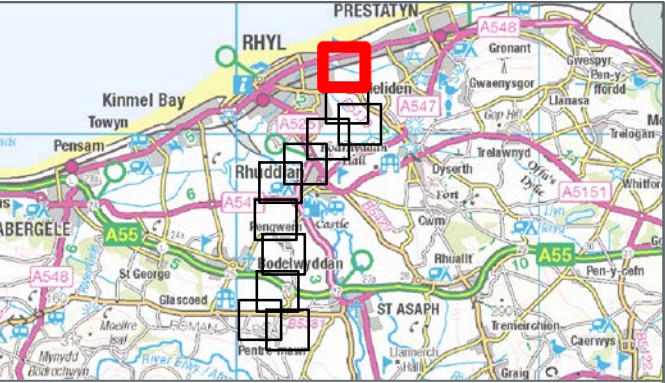
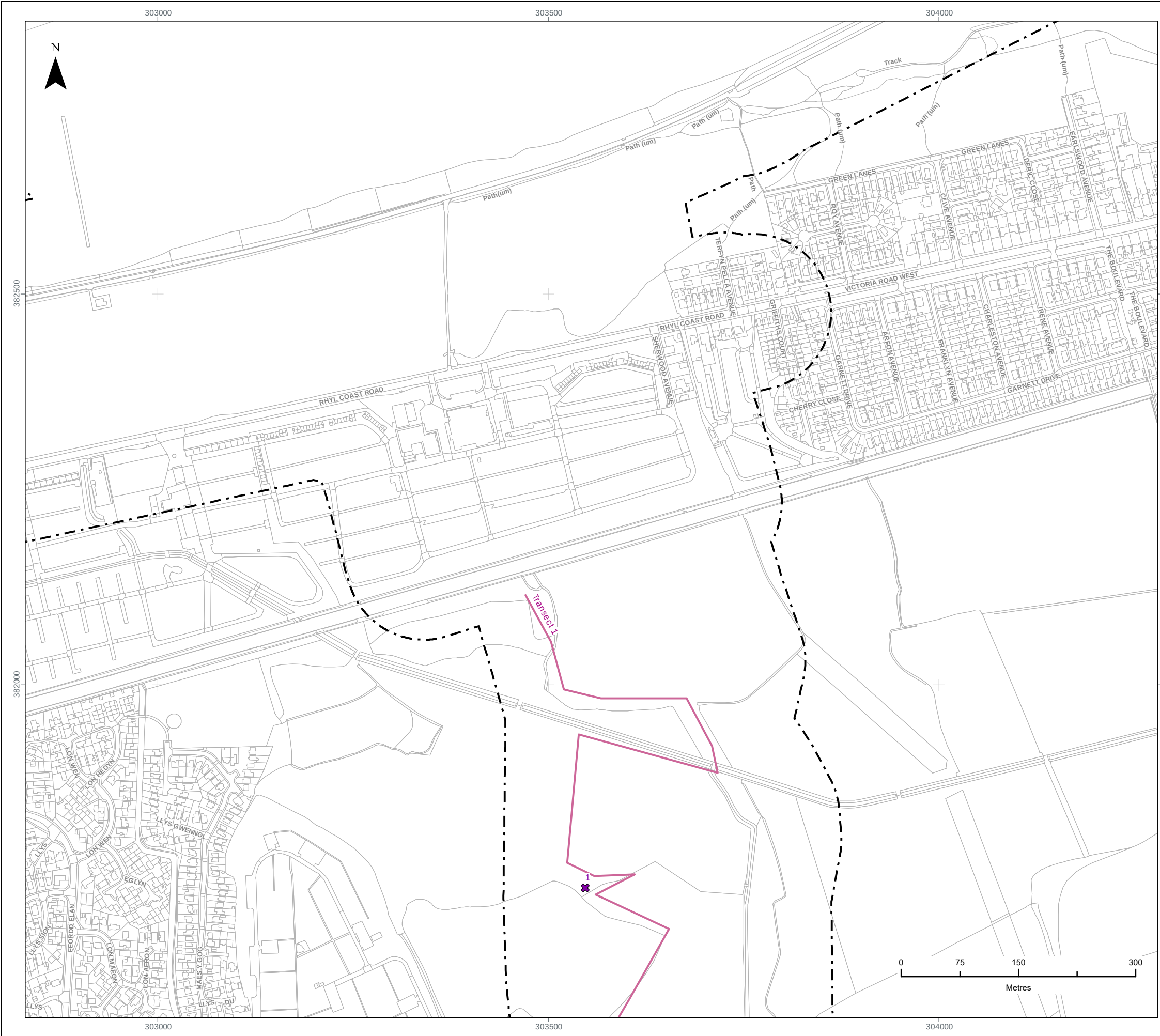
The activity survey has identified that bat activity levels vary across the survey area, and this is summarised in Table 4-1. Broadly speaking, the central parts of the survey area (traversed by transects 2 and 3) are less well used by bats than the northern and southern parts.

Table 4-1
Summary of locations with greatest activity

Species	Location with highest average calls per night	Locations with highest percentage of nights with bats
All combined	5, 19, 20	All locations had bats on every night
Noctule	6, 15, 16	4-7, 10, 15, 18, 19
Lesser horseshoe	4, 17, 20	4, 17-20
Greater horseshoe bat	20	Just one pass
Nathusius' pipistrelle	3, 11	3, 5, 11 (possibly 9)
Myotis	13, 16, 20	5, 15, 17, 19, 20

FIGURE 1

Tree Survey Observation Locations, Transect Routes and Static Detector Locations



LEGEND

- Draft Order Limits presented at Statutory Consultation
- 100 m Buffer
- Static Bat Detector Location
- Bat Transect Survey Route

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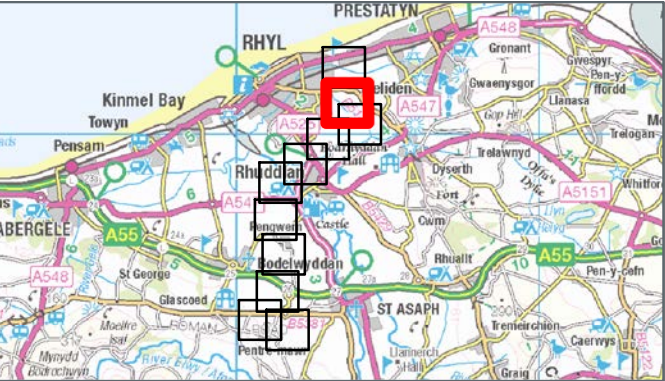
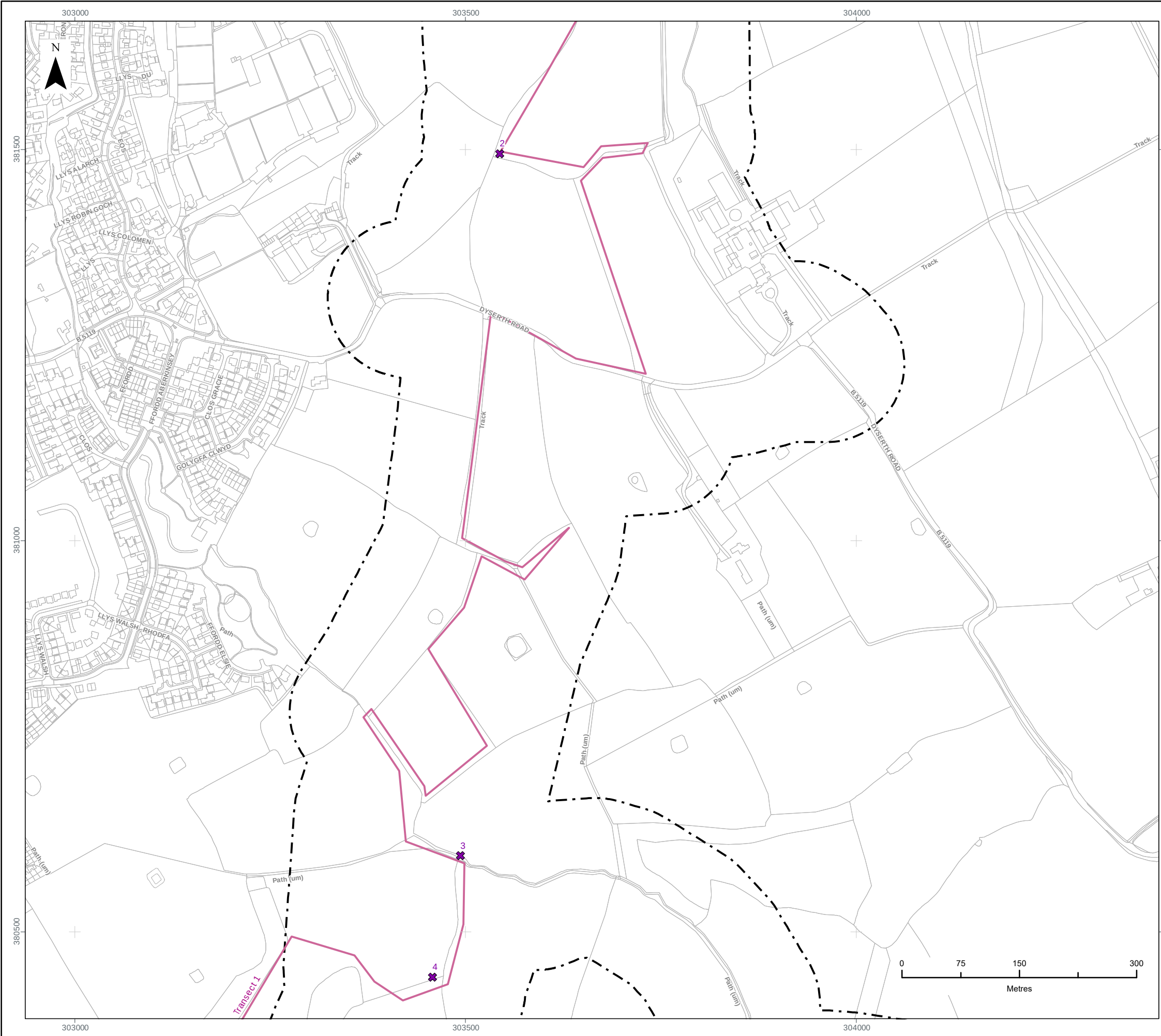
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OBSERVATION LOCATIONS, TRANSECT
ROUTES AND STATIC DETECTOR LOCATIONS**

VER	DATE	REMARKS	Drawn	Checked
1	14/12/2021	Draft	JRS	JC

FIGURE NUMBER:
FIGURE 1
Page 1 of 11

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Fferm Wyrnt Alltraeth
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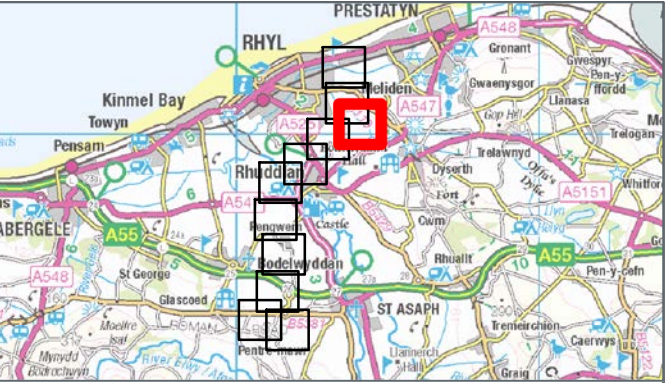
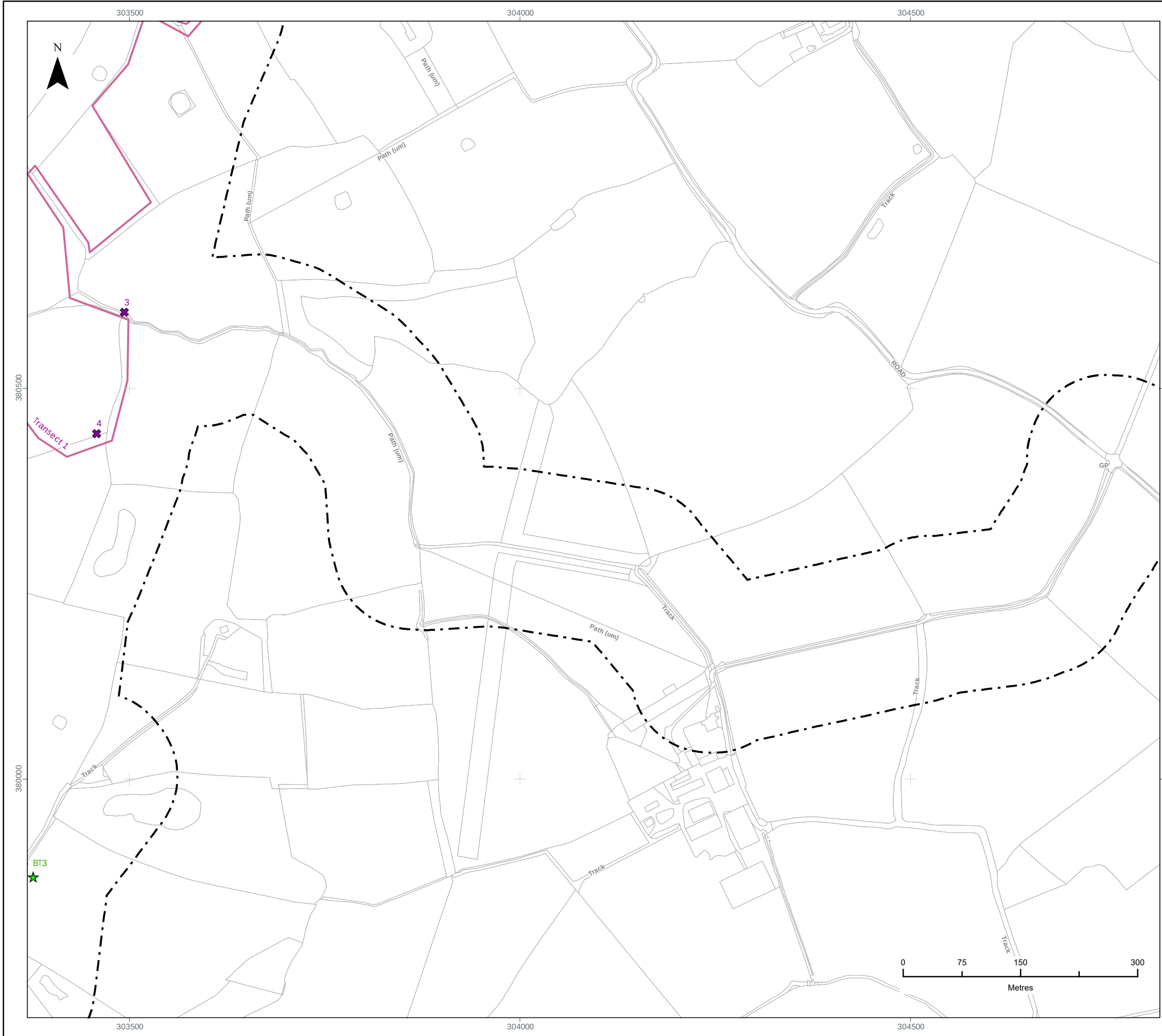
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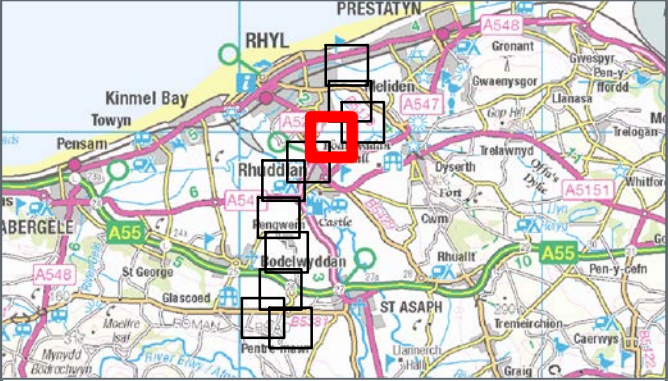
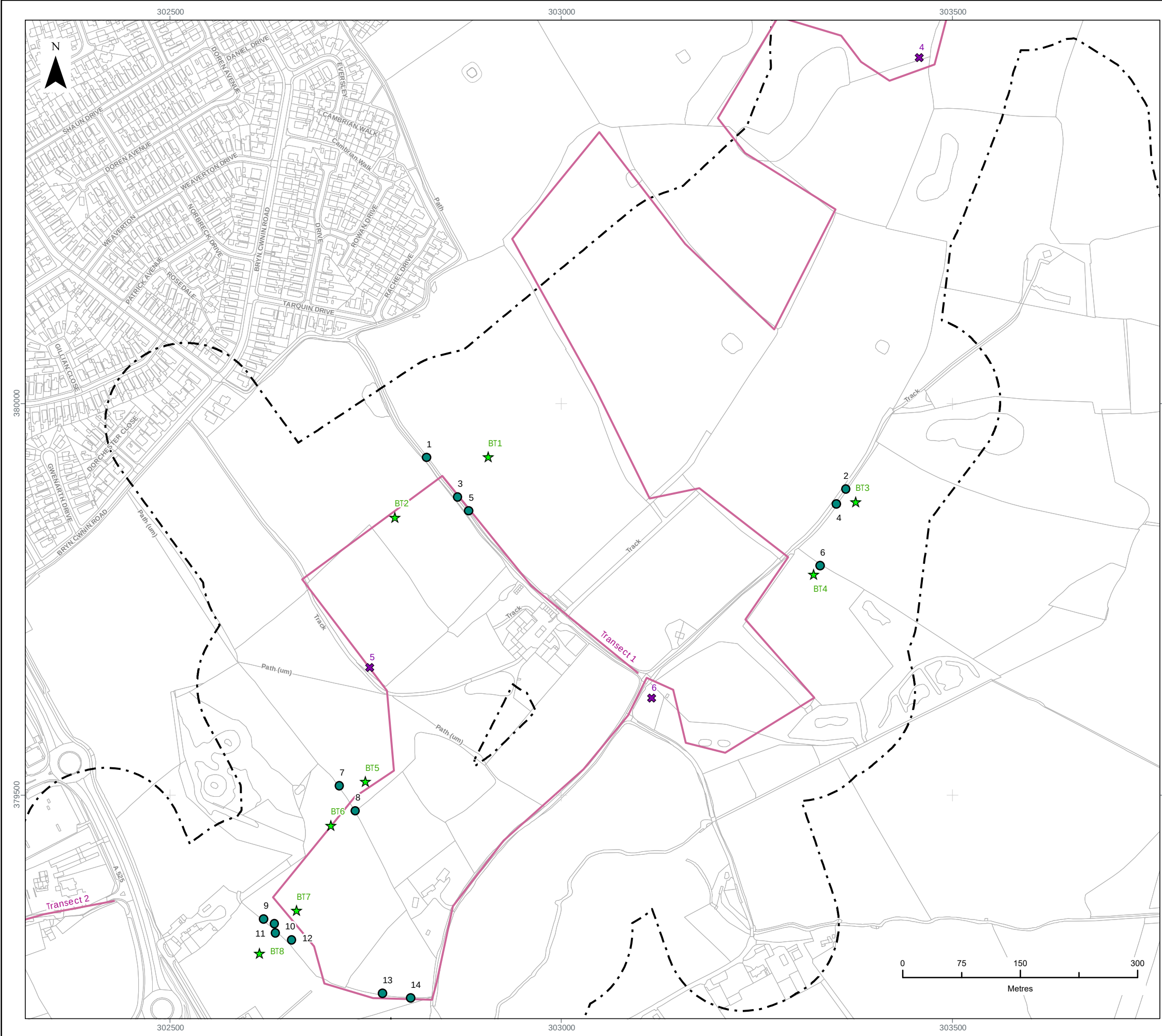
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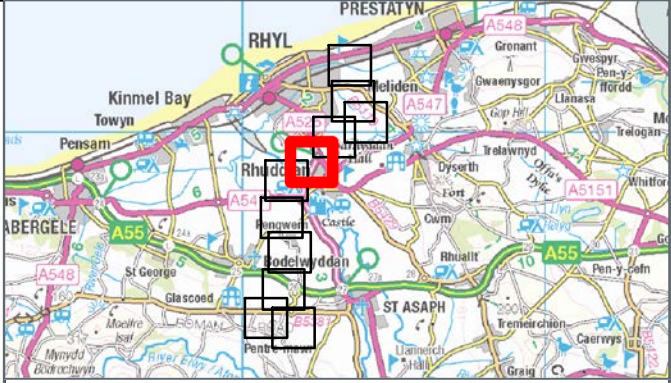
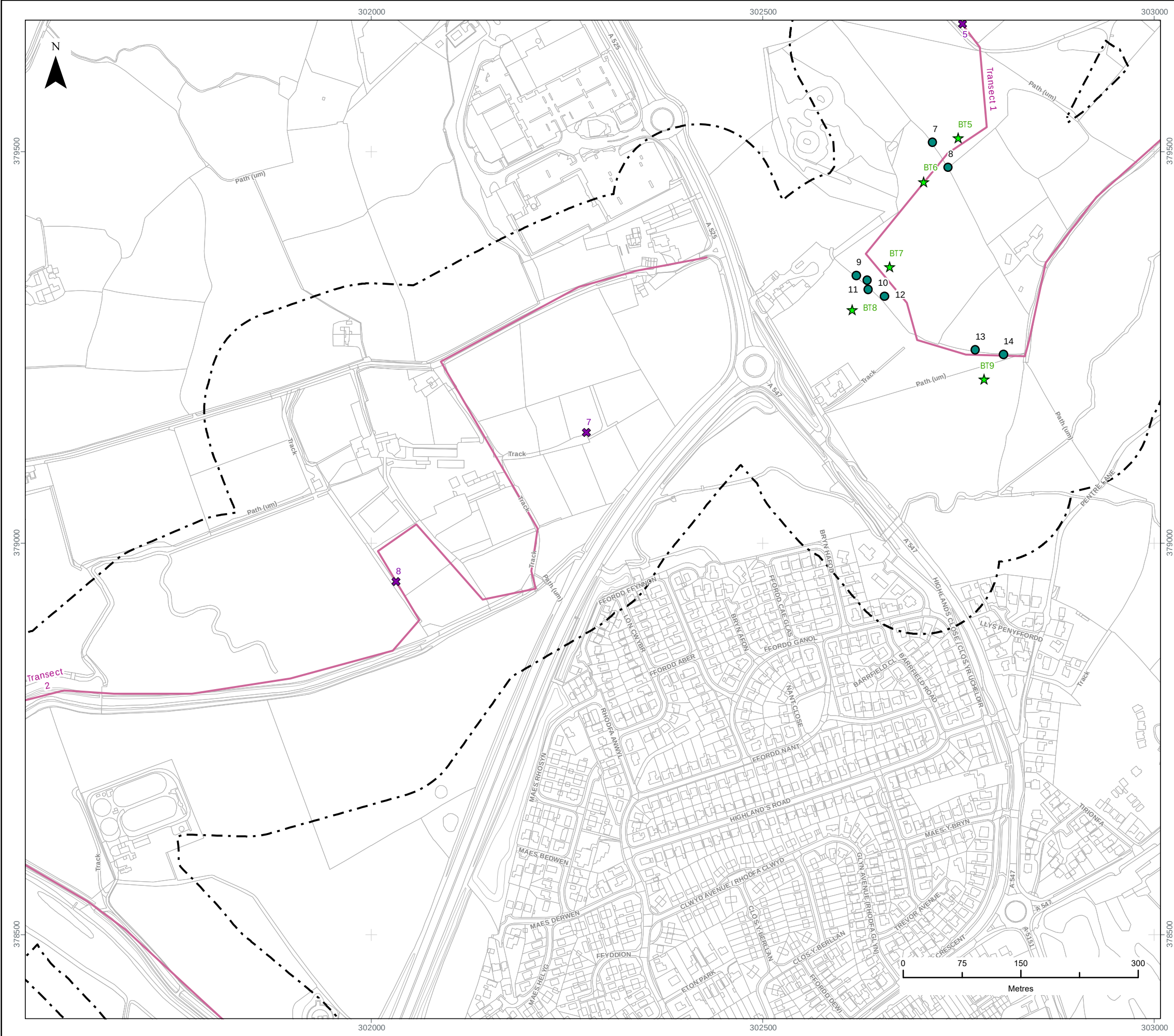
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FIGURE 1
Page 4 of 11

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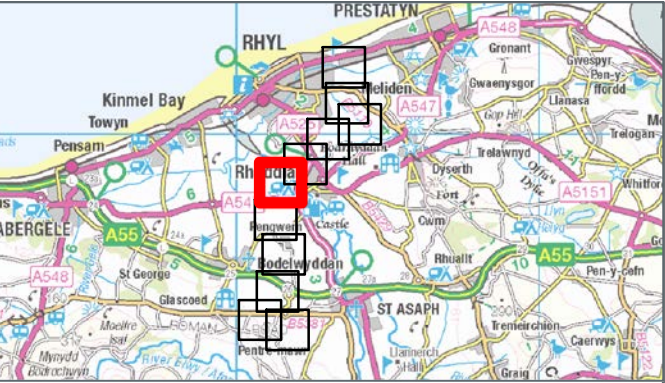
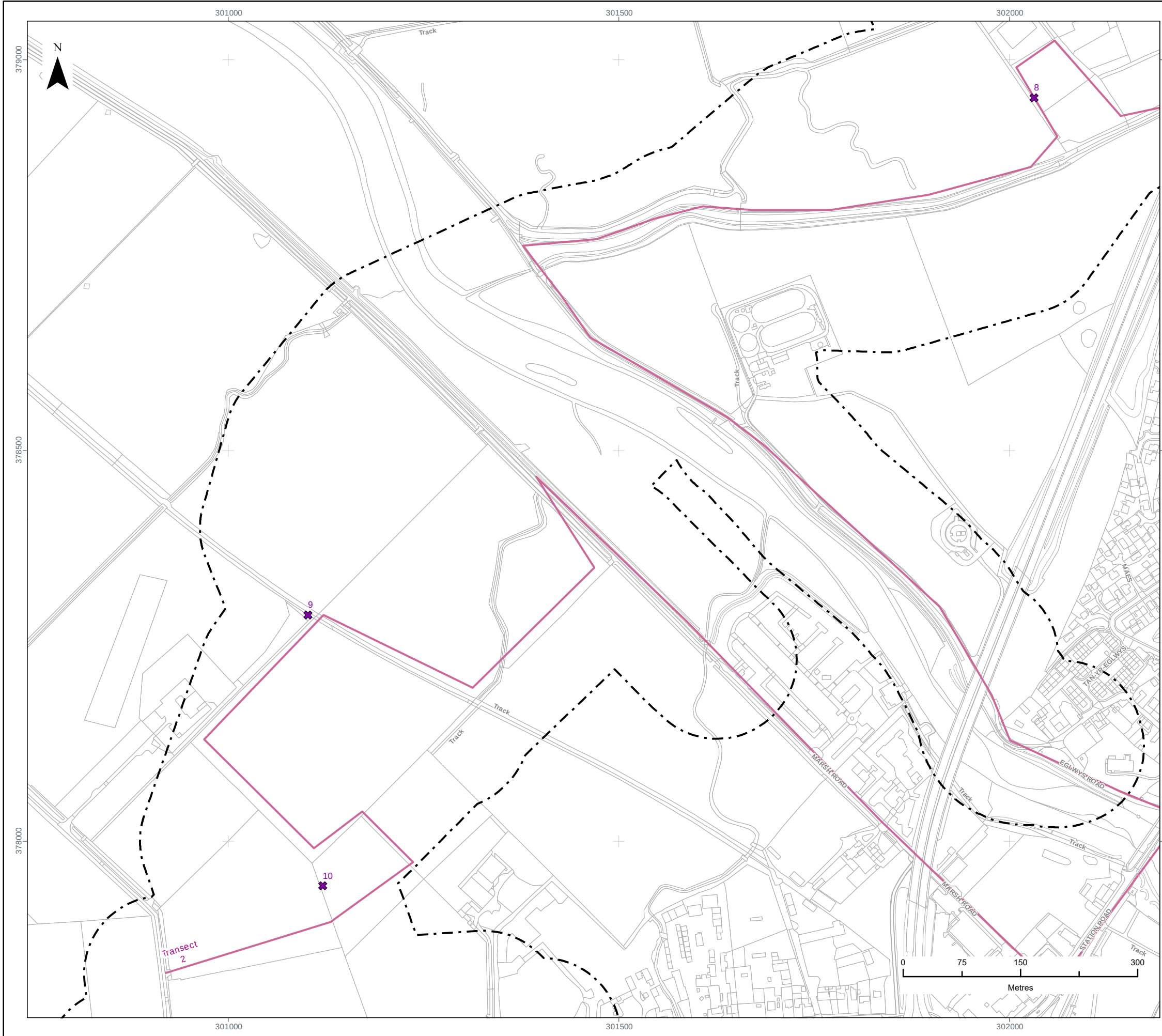
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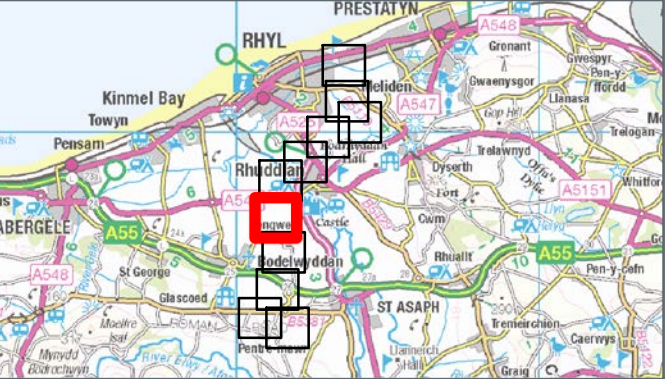
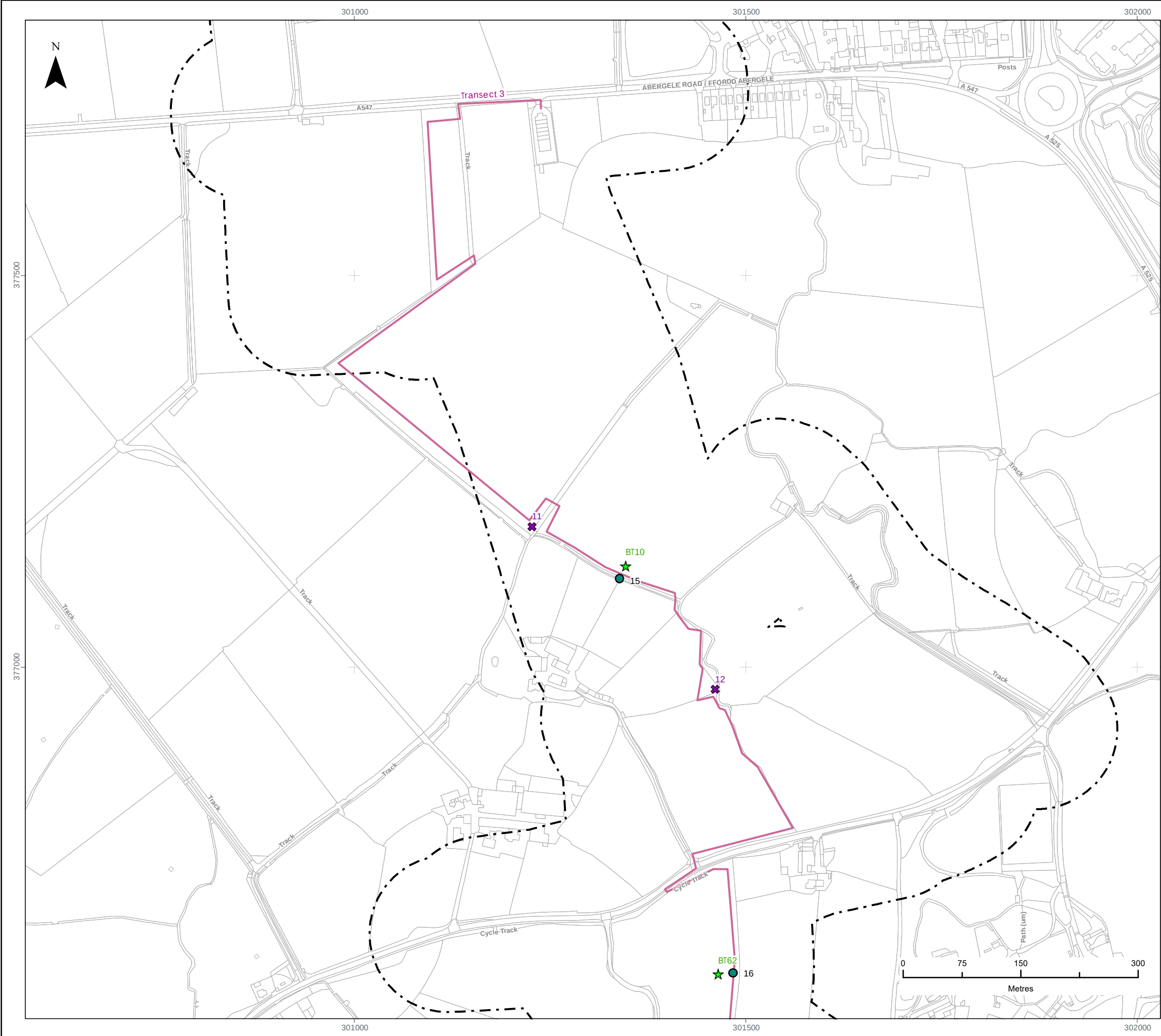
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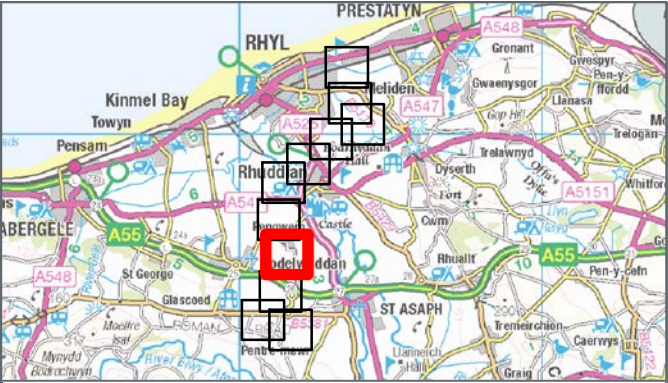
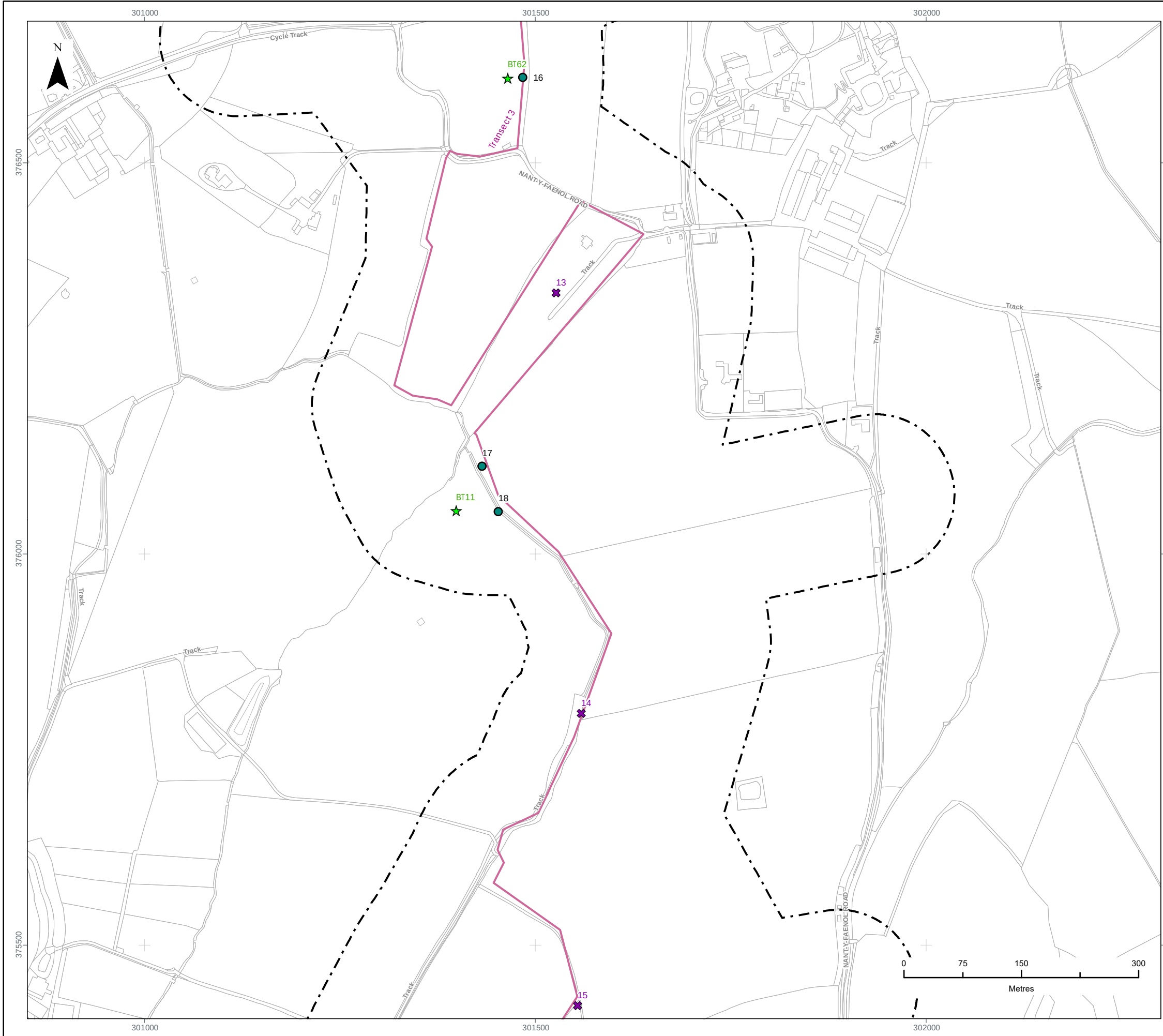
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**TREE SURVEY
OBSERVATION LOCATIONS, TRANSECT
ROUTES AND STATIC DETECTOR LOCATIONS**

VER	DATE	REMARKS	Drawn	Checked
1	14/12/2021	Draft	JRS	JC

FIGURE NUMBER:
FIGURE 1
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm



- LEGEND
- Draft Order Limits presented at Statutory Consultation
 - 100 m Buffer
 - Tree Subject to Survey
 - Observation Location
 - Static Bat Detector Location
 - Bat Transect Survey Route

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BAT SURVEY REPORT*

FIGURE TITLE:
**TREE SURVEY
OBSERVATION LOCATIONS, TRANSECT
ROUTES AND STATIC DETECTOR LOCATIONS**

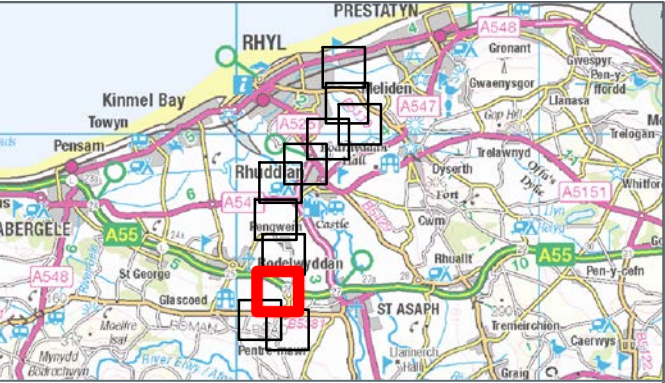
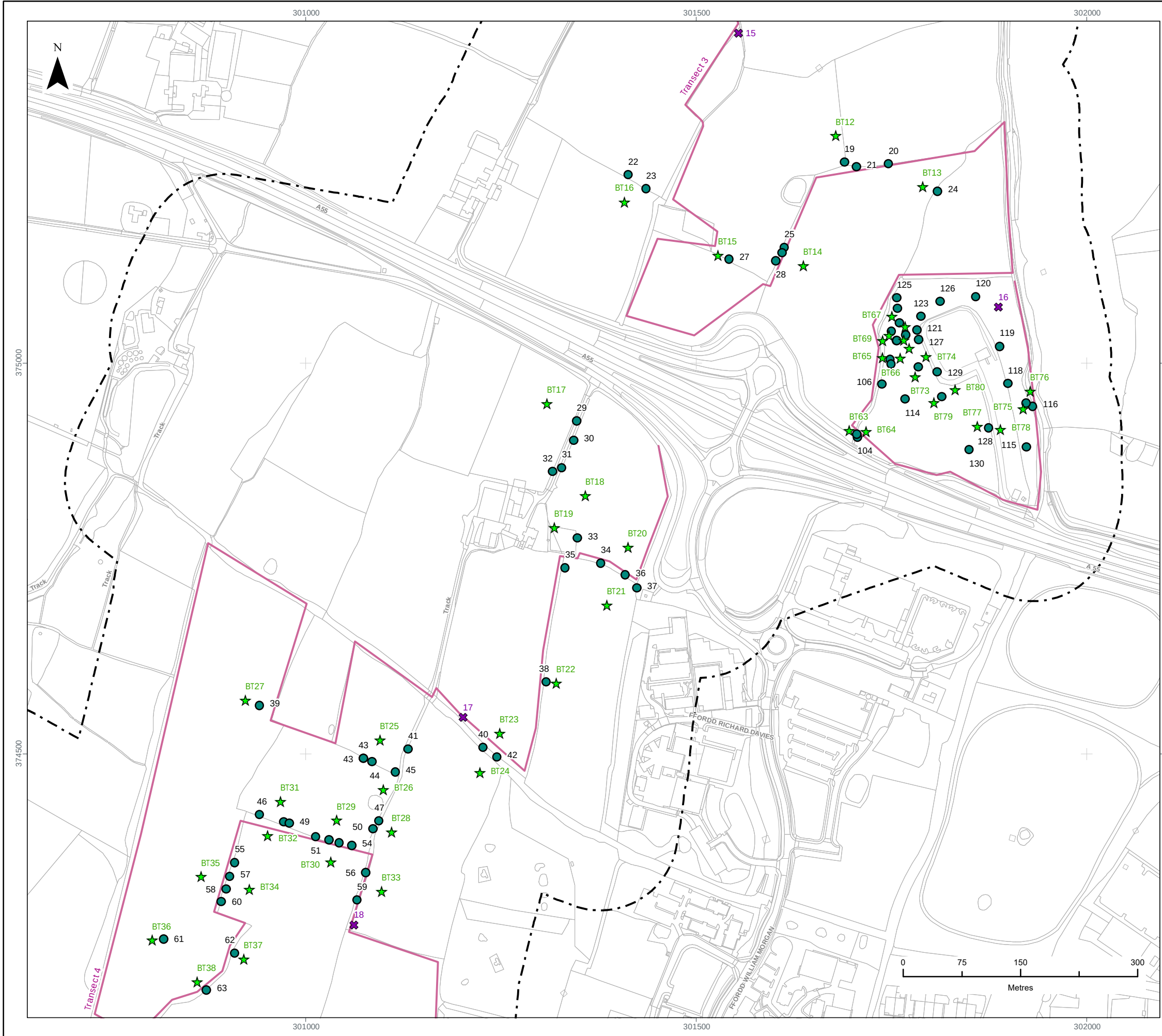
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LEGEND

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- Tree Subject to Survey
- Observation Location
- Static Bat Detector Location
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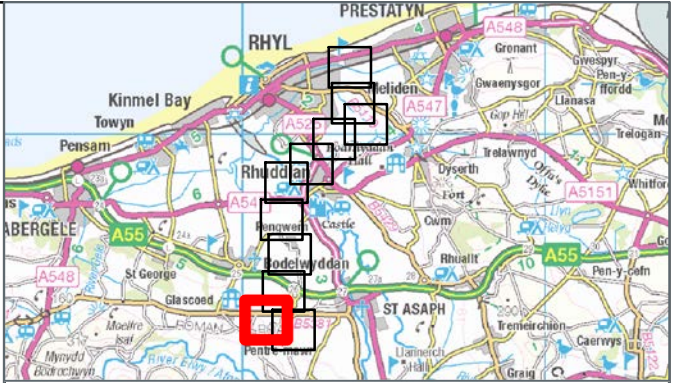
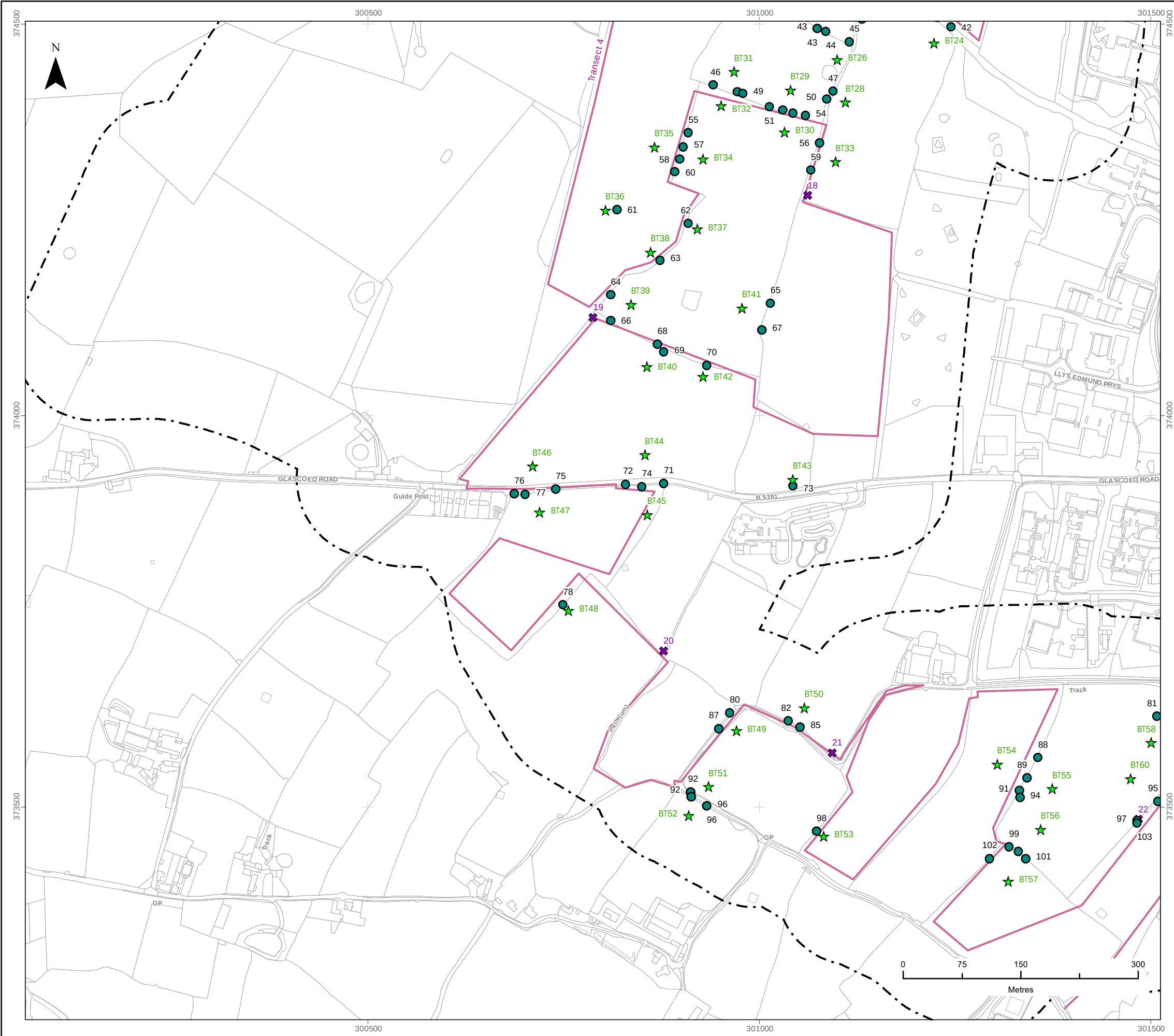
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ROUTES AND STATIC DETECTOR LOCATIONS**

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- LEGEND**
- Draft Order Limits presented at Statutory Consultation
100 m Buffer
 - Tree Subject to Survey
 - ★ Observation Location
 - ★ Static Bat Detector Location
 - Bat Transect Survey Route

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FIGURE TITLE:
**TREE SURVEY
OBSERVATION LOCATIONS, TRANSECT
ROUTES AND STATIC DETECTOR LOCATIONS**

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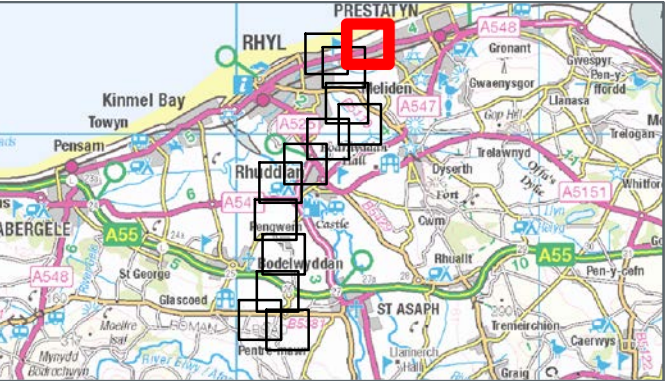
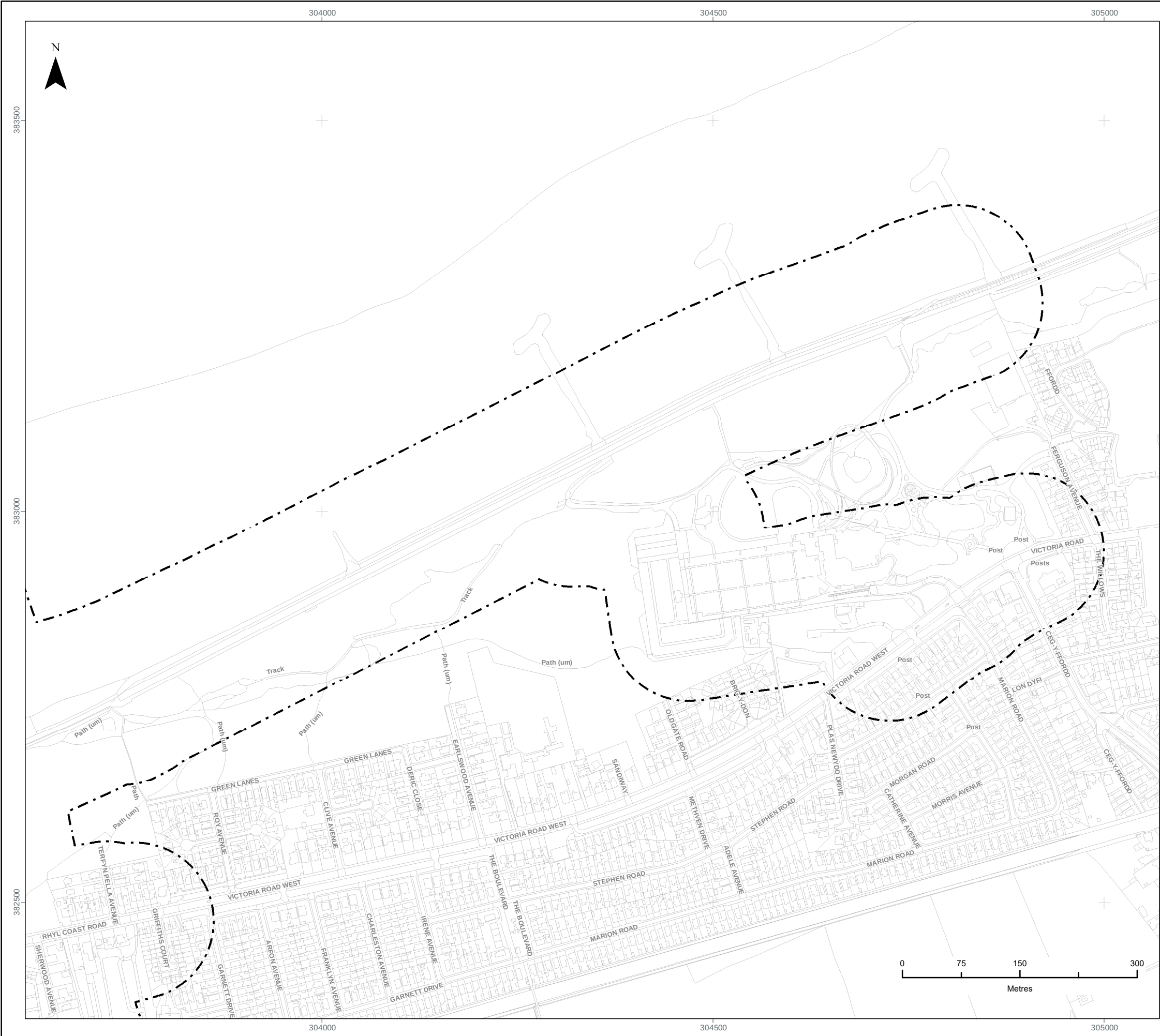
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FIGURE 2

Tree Roost Assessment Results



LEGEND

Draft Order Limits presented at Statutory Consultation

100 m Buffer

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FIGURE TITLE:
TREE ROOST ASSESSMENT RESULTS

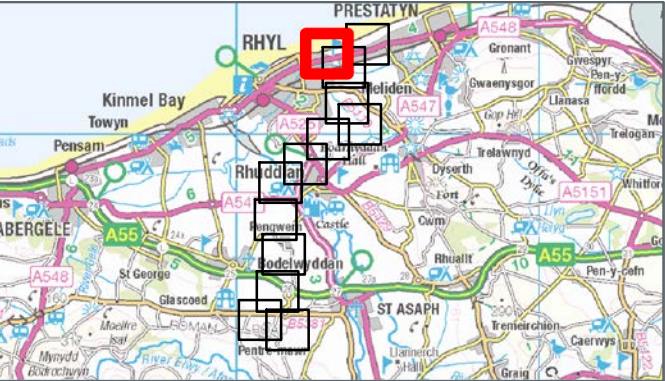
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Fferm Wyrnt Alltraeth
AWEL Y MÔR
Offshore Wind Farm



LEGEND

- Draft Order Limits presented at Statutory Consultation
- 100 m Buffer
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Bat Transect Survey Route

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BAT SURVEY REPORT**

FIGURE TITLE:
TREE ROOST ASSESSMENT RESULTS

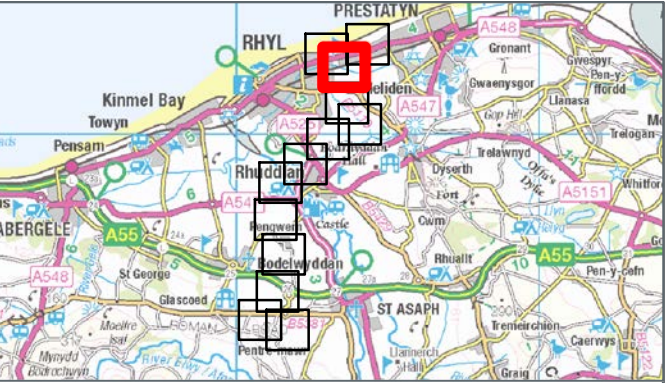
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2	14/12/2021	Second Issue	JRS	JC

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Fferm Wyrnt Alltraeth
AWEL Y MÔR
Offshore Wind Farm



LEGEND

- Draft Order Limits presented at Statutory Consultation
100 m Buffer
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

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BAT SURVEY REPORT***

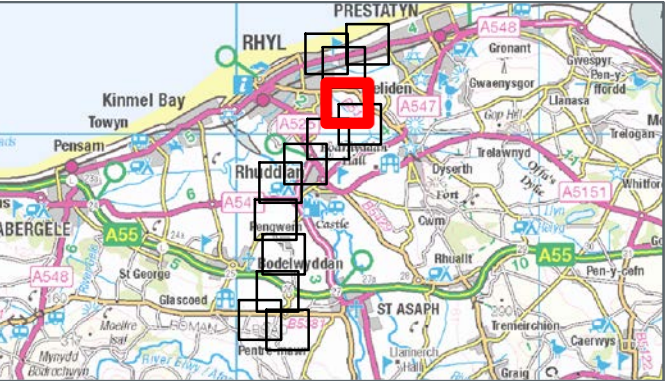
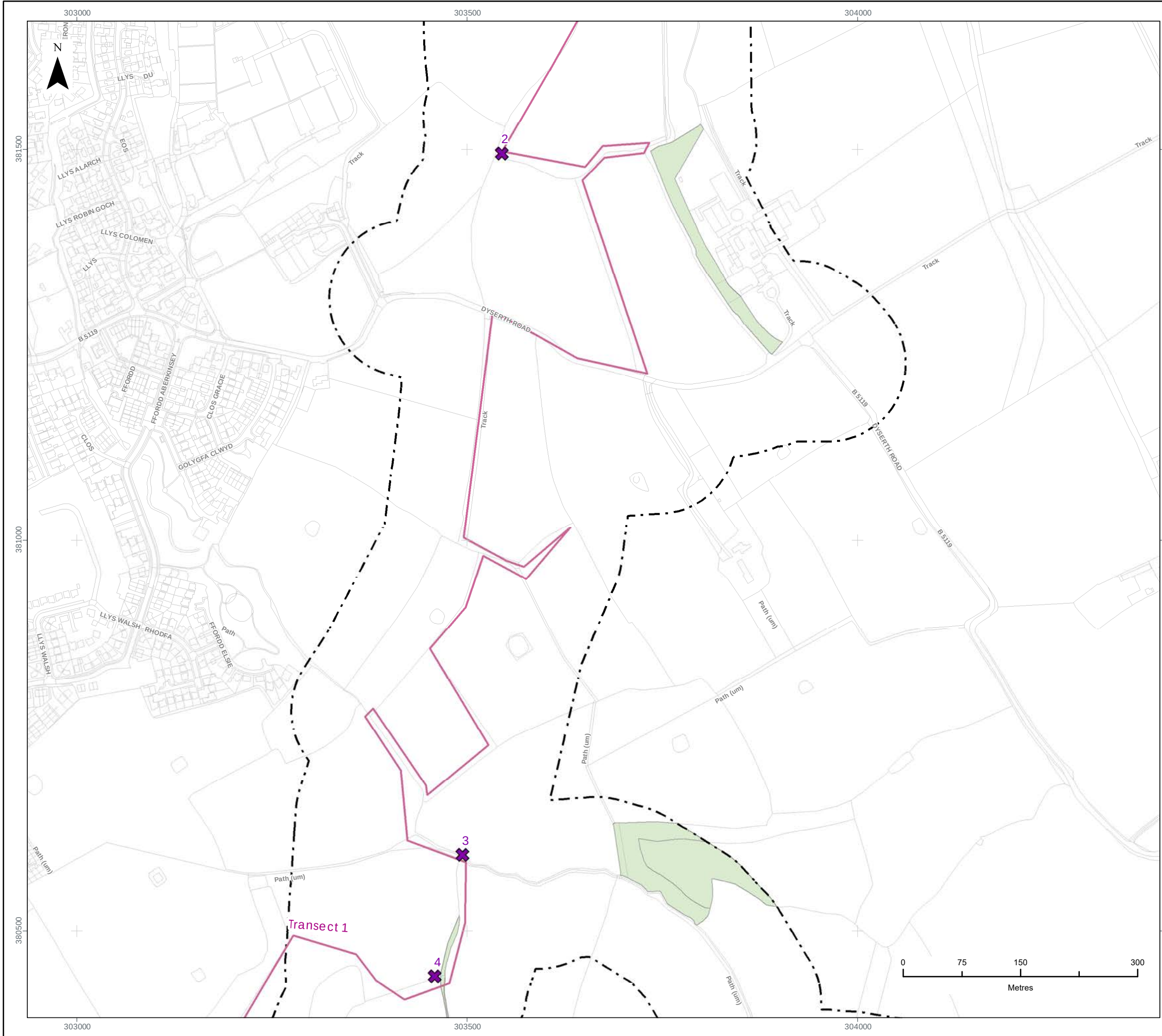
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2	14/12/2021	Second Issue	JRS	JC

FIGURE NUMBER:
FIGURE 2
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Fferm Wyrnt Alltraeth
AWEL Y MÔR
Offshore Wind Farm



LEGEND

- Draft Order Limits presented at Statutory Consultation 100 m Buffer
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

Data Source:
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PROJECT TITLE:
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BAT SURVEY REPORT**

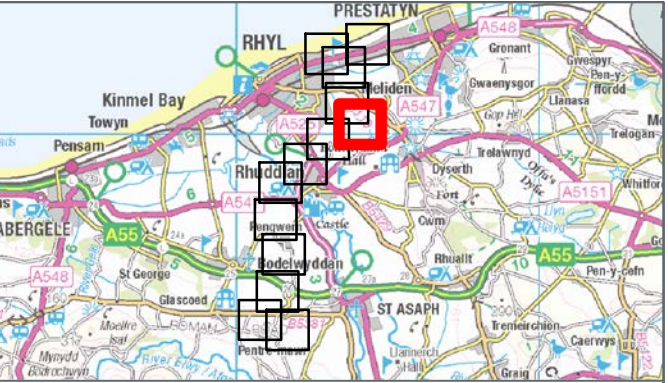
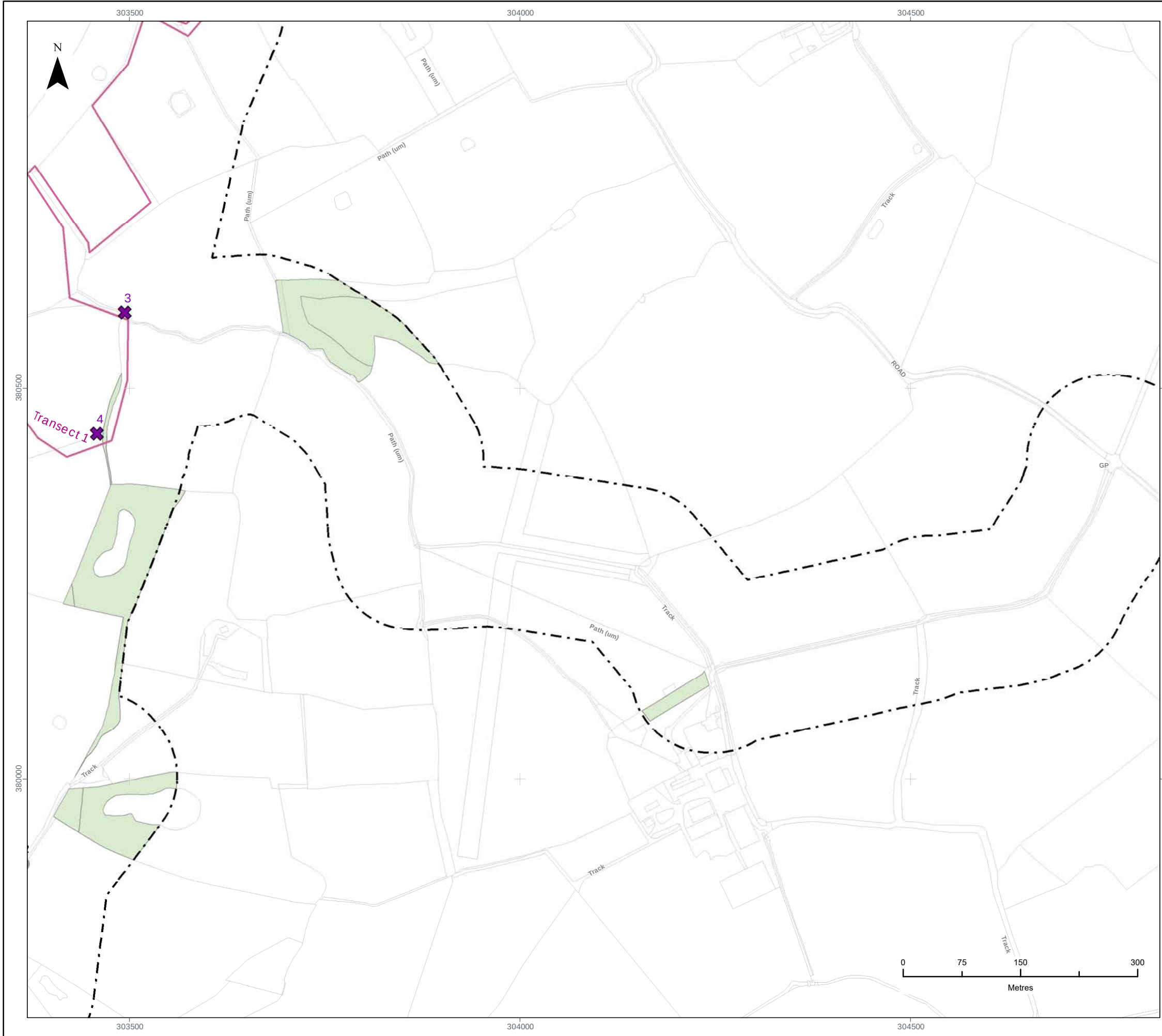
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2	14/12/2021	Second Issue	JRS	JC

FIGURE NUMBER:
FIGURE 2
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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LEGEND

- Draft Order Limits presented at Statutory Consultation
- 100 m Buffer
- Trees with Bat Roost Potential**
 - Negligible Potential
 - Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
 - Static Bat Detector Location
 - Bat Transect Survey Route

Data Source:
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PROJECT TITLE:
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BAT SURVEY REPORT**

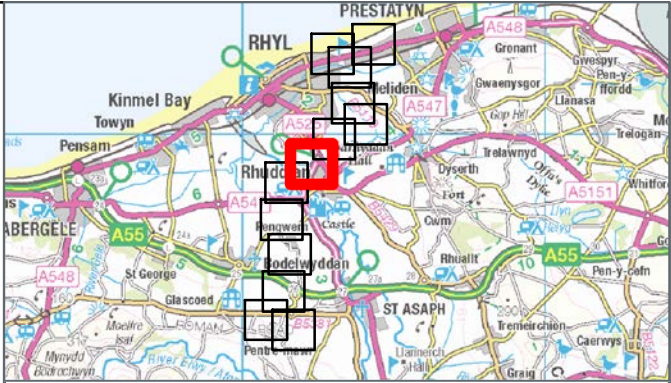
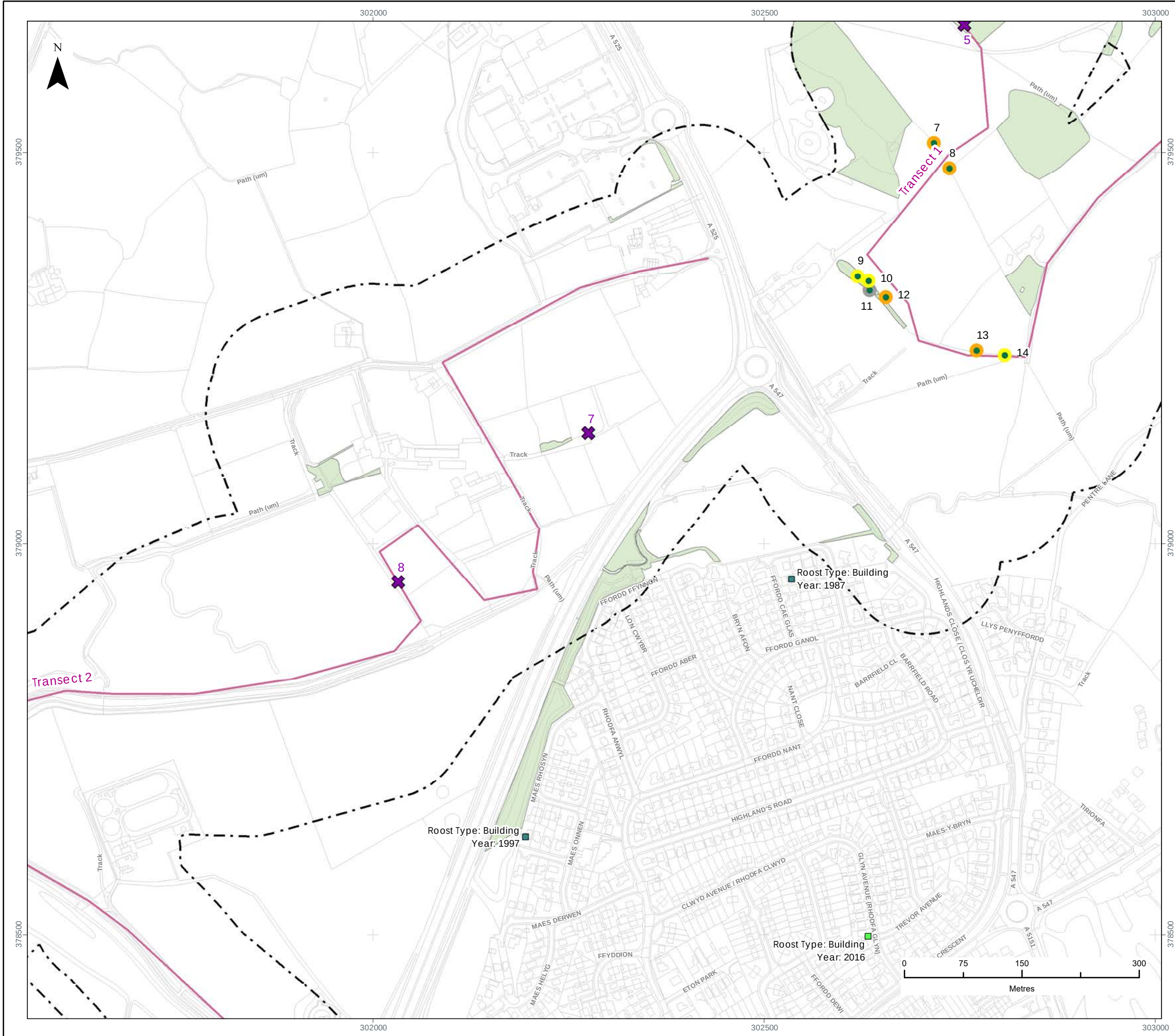
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FIGURE NUMBER:
FIGURE 2
Page 5 of 13

SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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LEGEND

Draft Order Limits presented at Statutory Consultation
100 m Buffer

Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled

- Pipistrellus Bat Species
- Unknown Bat

Trees with Bat Roost Potential

- Moderate Potential
- Low Potential
- Negligible Potential

Woodland Not Subject to Detailed Bat Survey - Not Affected by Development

Static Bat Detector Location

Bat Transect Survey Route

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PROJECT TITLE:
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BAT SURVEY REPORT

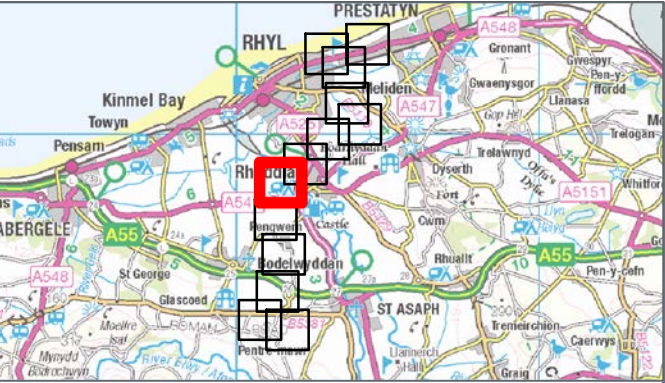
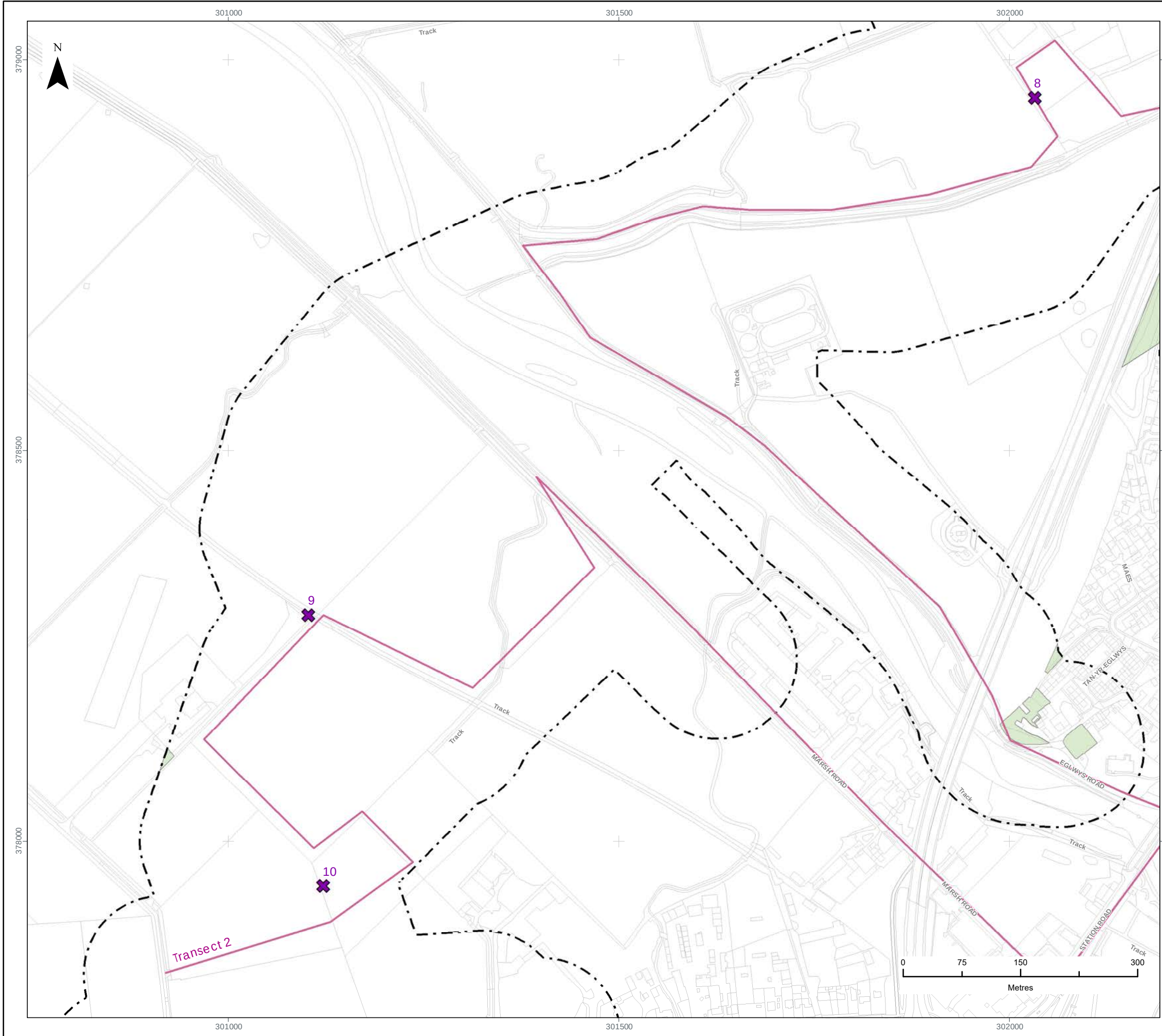
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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LEGEND

- Draft Order Limits presented at Statutory Consultation 100 m Buffer
- Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled
- Unknown Bat
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

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BAT SURVEY REPORT*

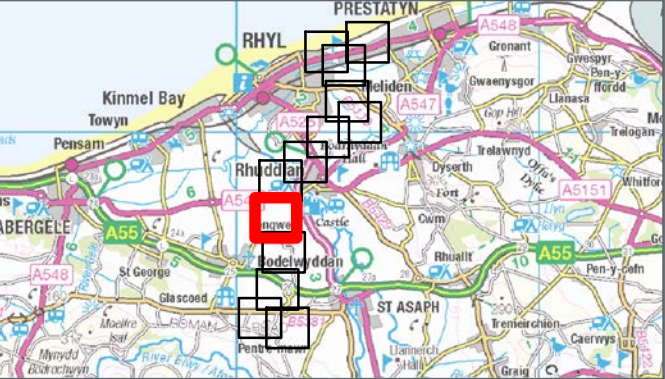
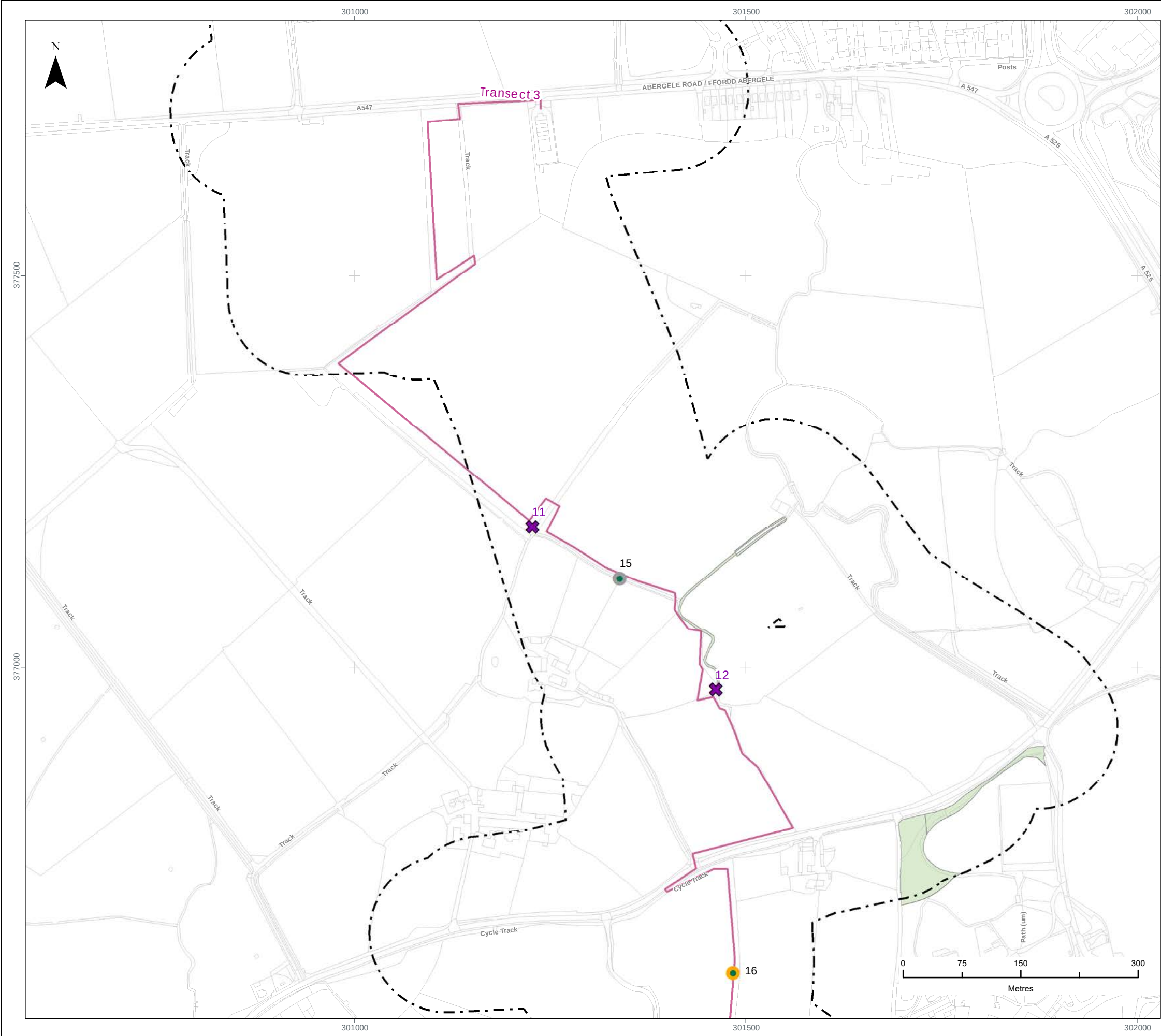
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FIGURE NUMBER:
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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LEGEND

Draft Order Limits presented at Statutory Consultation
100 m Buffer

Trees with Bat Roost Potential

- Moderate Potential
- Negligible Potential
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

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BAT SURVEY REPORT***

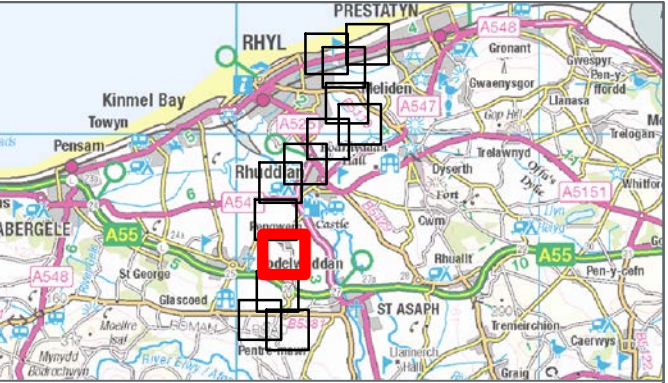
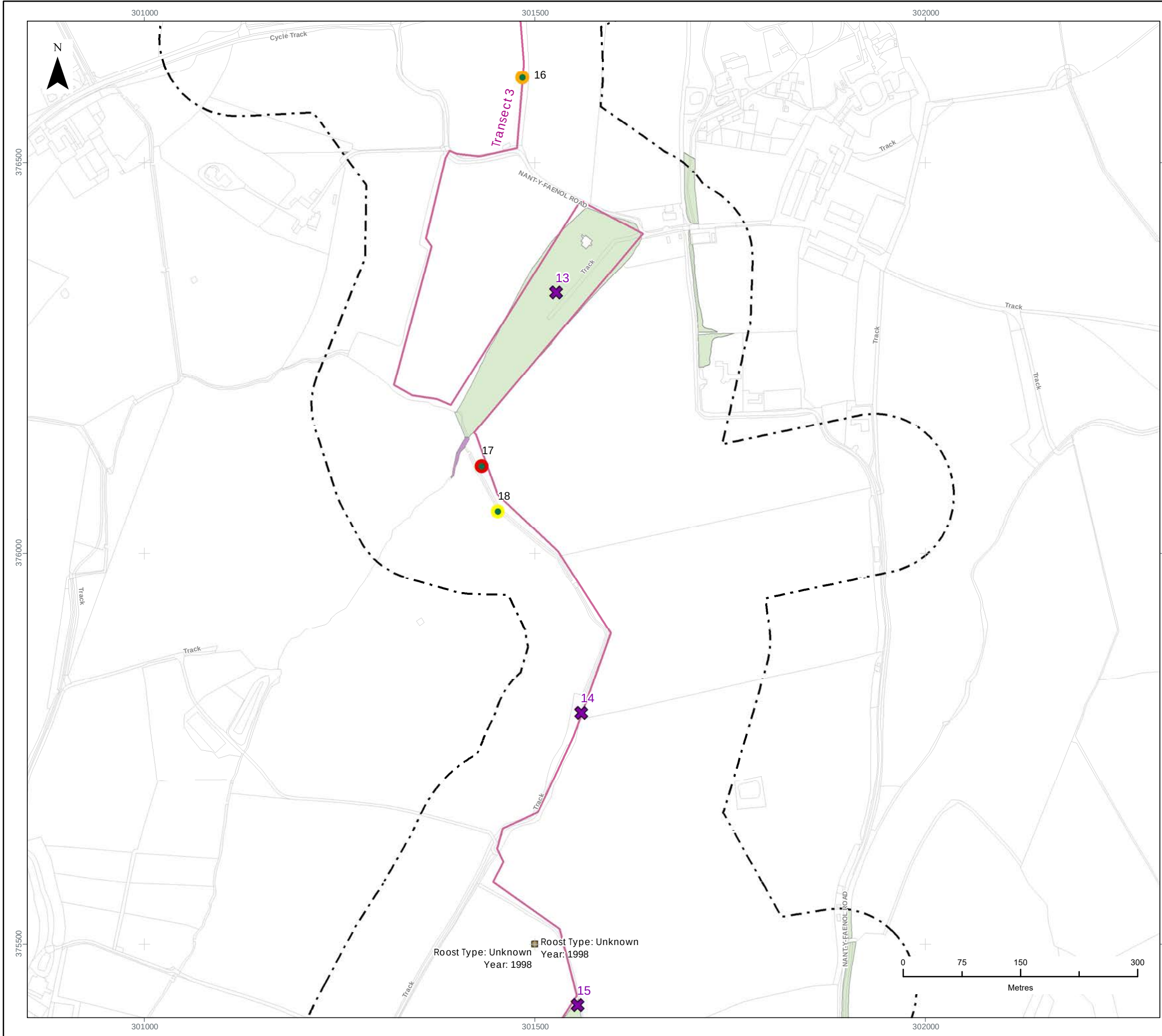
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FIGURE NUMBER:
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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LEGEND

--- Draft Order Limits presented at Statutory Consultation
--- 100 m Buffer

Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled

- Common Pipistrelle
- Noctule Bat
- Soprano Pipistrelle

Trees with Bat Roost Potential

- High Potential
- Moderate Potential
- Low Potential

Woodland Subject to Detailed Bat Survey - May Be Affected by Development

Woodland Not Subject to Detailed Bat Survey - Not Affected by Development

Static Bat Detector Location

Bat Transect Survey Route

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BAT SURVEY REPORT**

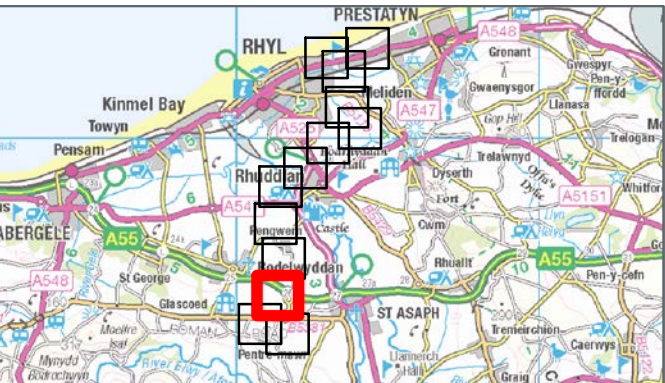
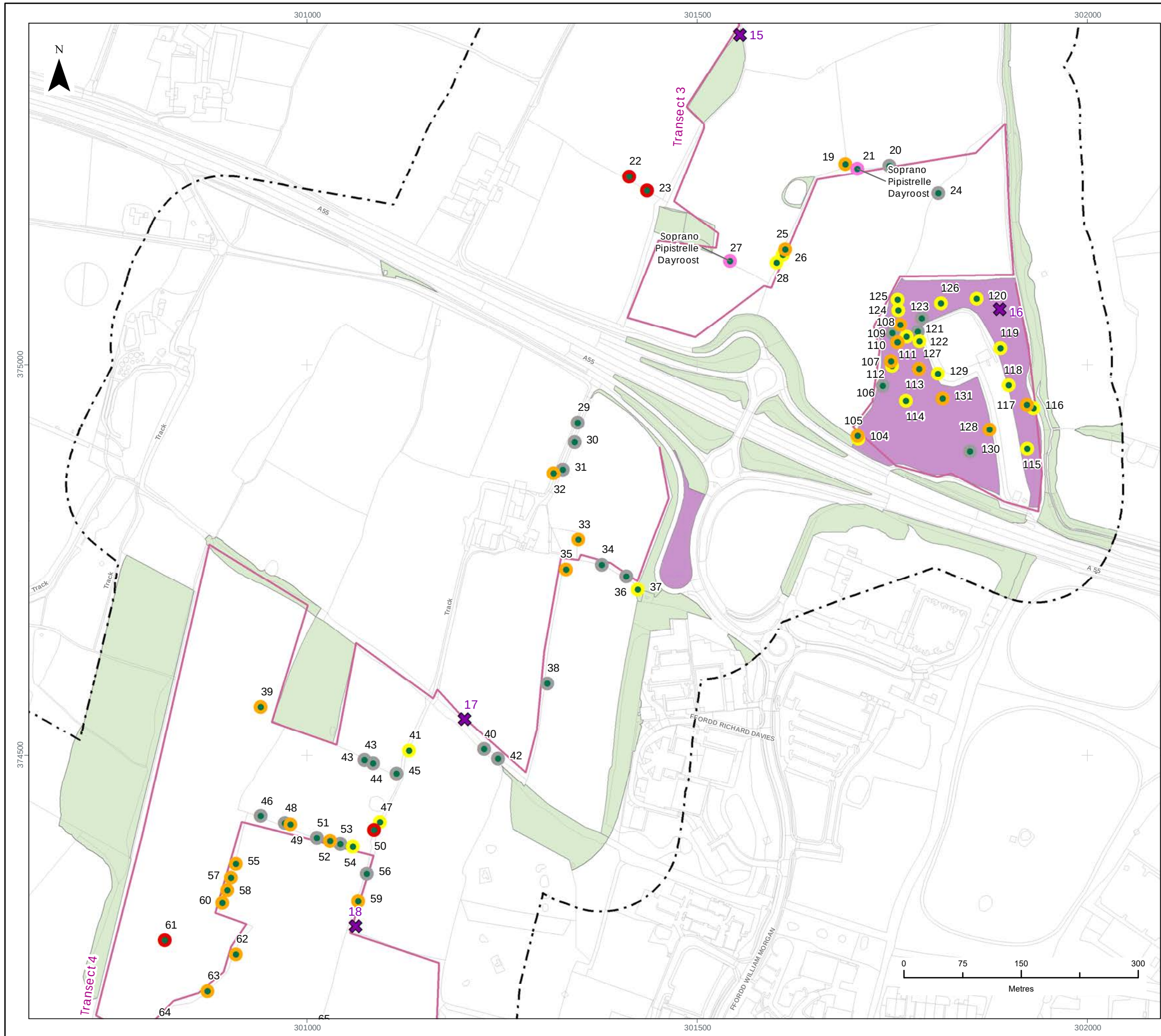
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LEGEND

--- Draft Order Limits presented at Statutory Consultation
--- 100 m Buffer

Trees with Bat Roost Potential

- Confirmed Bat Roost
- High Potential
- Moderate Potential
- Low Potential
- Negligible Potential

Woodland Subject to Detailed Bat Survey - May Be Affected by Development

Woodland Not Subject to Detailed Bat Survey - Not Affected by Development

Static Bat Detector Location

Bat Transect Survey Route

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BAT SURVEY REPORT**

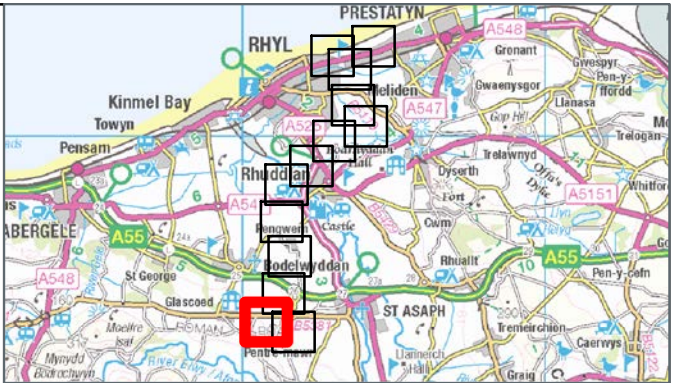
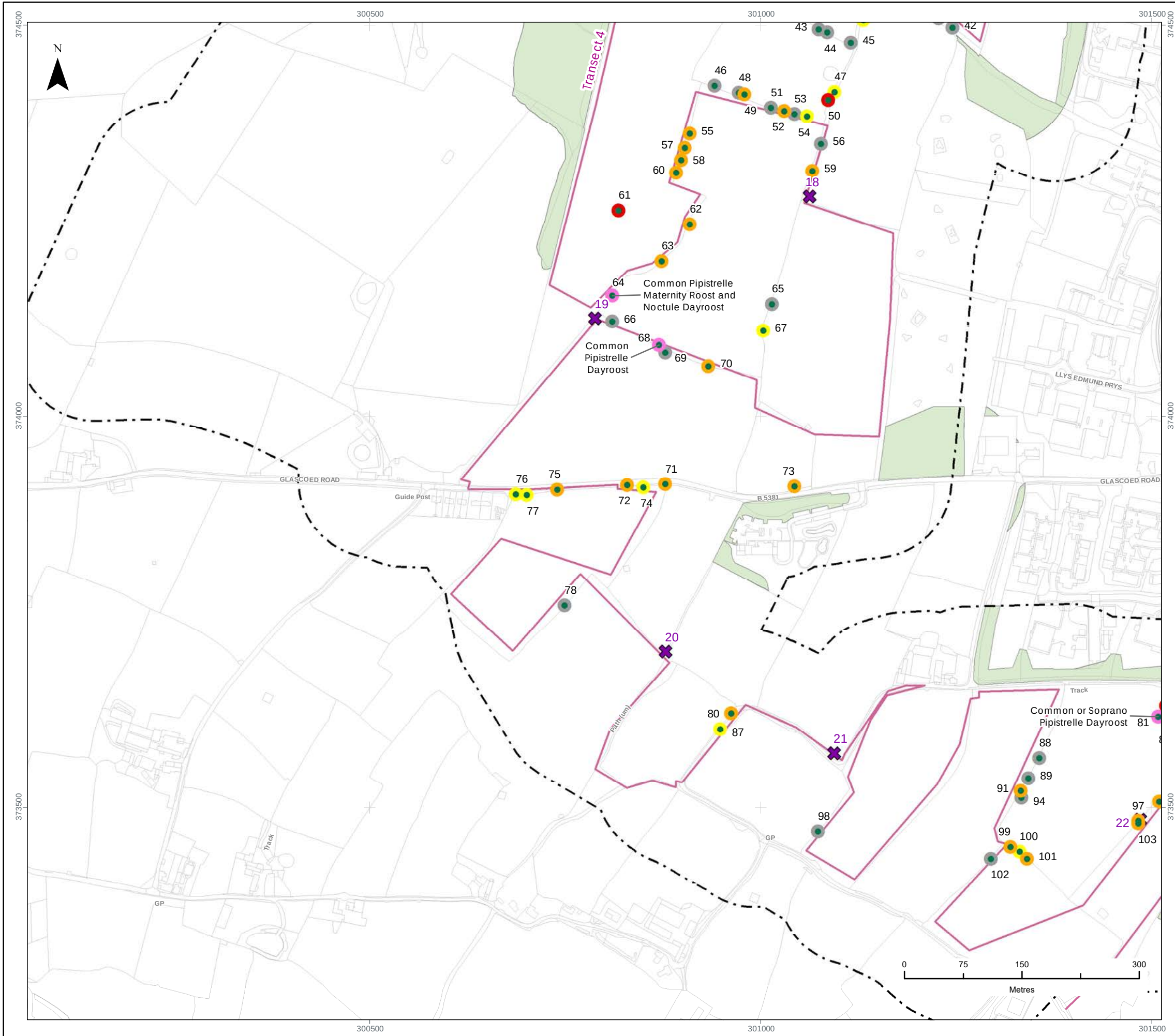
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LEGEND

Draft Order Limits presented at Statutory Consultation
100 m Buffer

Trees with Bat Roost Potential

- Confirmed Bat Roost
- High Potential
- Moderate Potential
- Low Potential
- Negligible Potential
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

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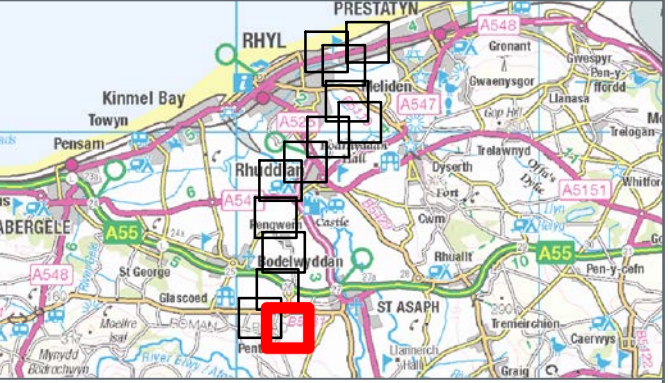
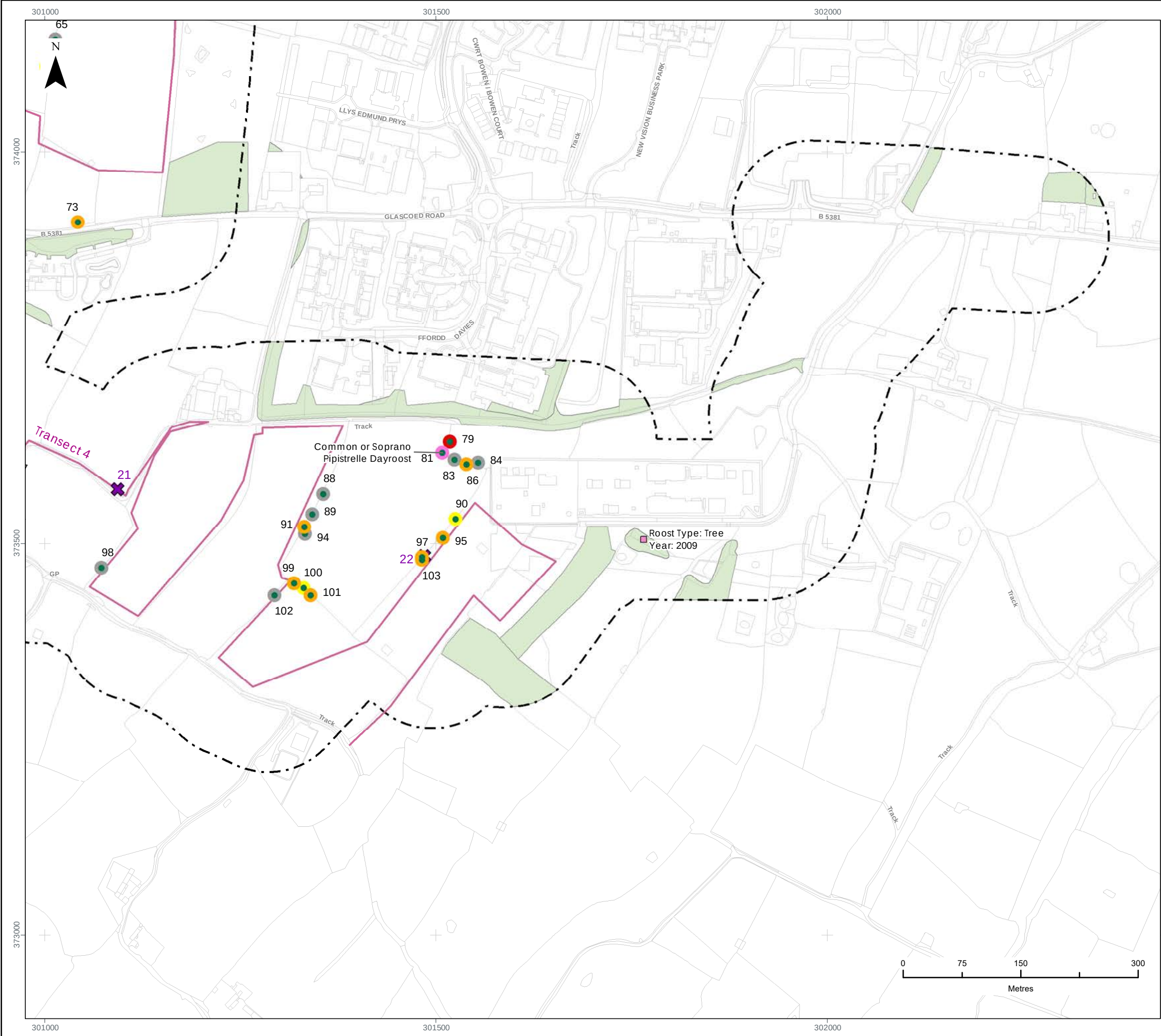
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LEGEND

--- Draft Order Limits presented at Statutory Consultation
100 m Buffer

Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled

- Noctule Bat
- Trees with Bat Roost Potential
 - Confirmed Bat Roost
 - High Potential
 - Moderate Potential
 - Low Potential
 - Negligible Potential
- Woodland Not Subject to Detailed Bat Survey - Not Affected by Development
- Static Bat Detector Location
- Bat Transect Survey Route

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FIGURE TITLE:
TREE ROOST ASSESSMENT RESULTS

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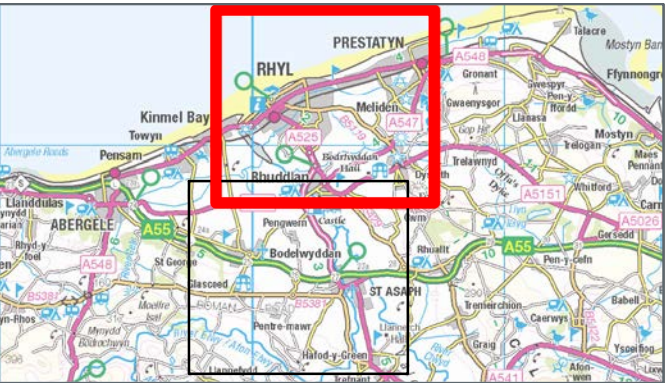
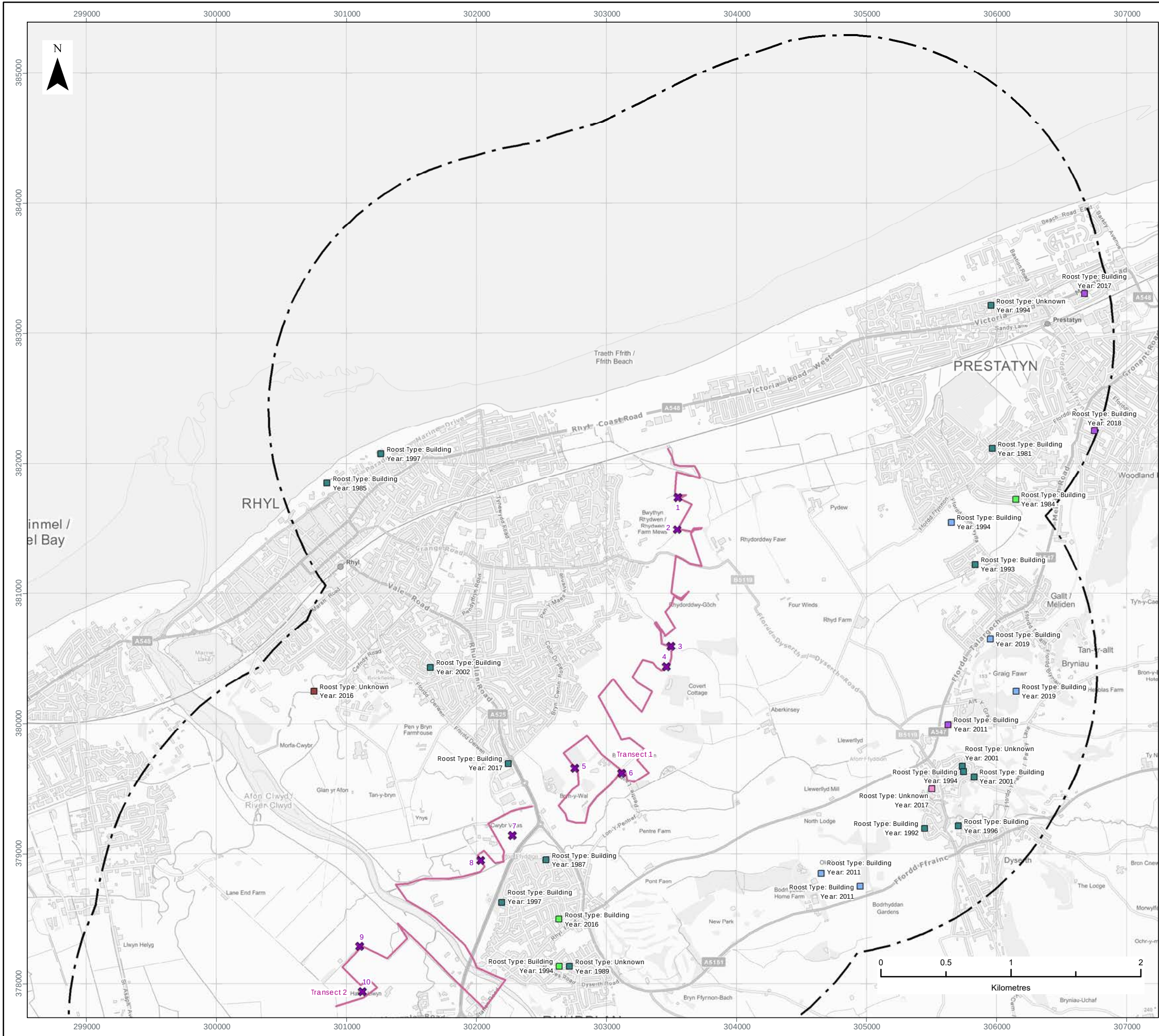
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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FIGURE 3

Pre-existing Roost Records and 2021 Tree Roost Locations



LEGEND

- Draft Order Limits presented at Statutory Consultation 2 km Buffer
- Static Bat Detector Location
- Bat Transect Survey Route

Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled

- Common Pipistrelle
- Daubenton's Bat
- Lesser Horseshoe Bat
- Noctule Bat
- Pipistrellus Bat Species
- Unknown Bat

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BAT SURVEY REPORT**

FIGURE TITLE:
**BAT SURVEY - PRE-EXISTING ROOST
RECORDS AND 2021 TREE ROOST RESULTS**

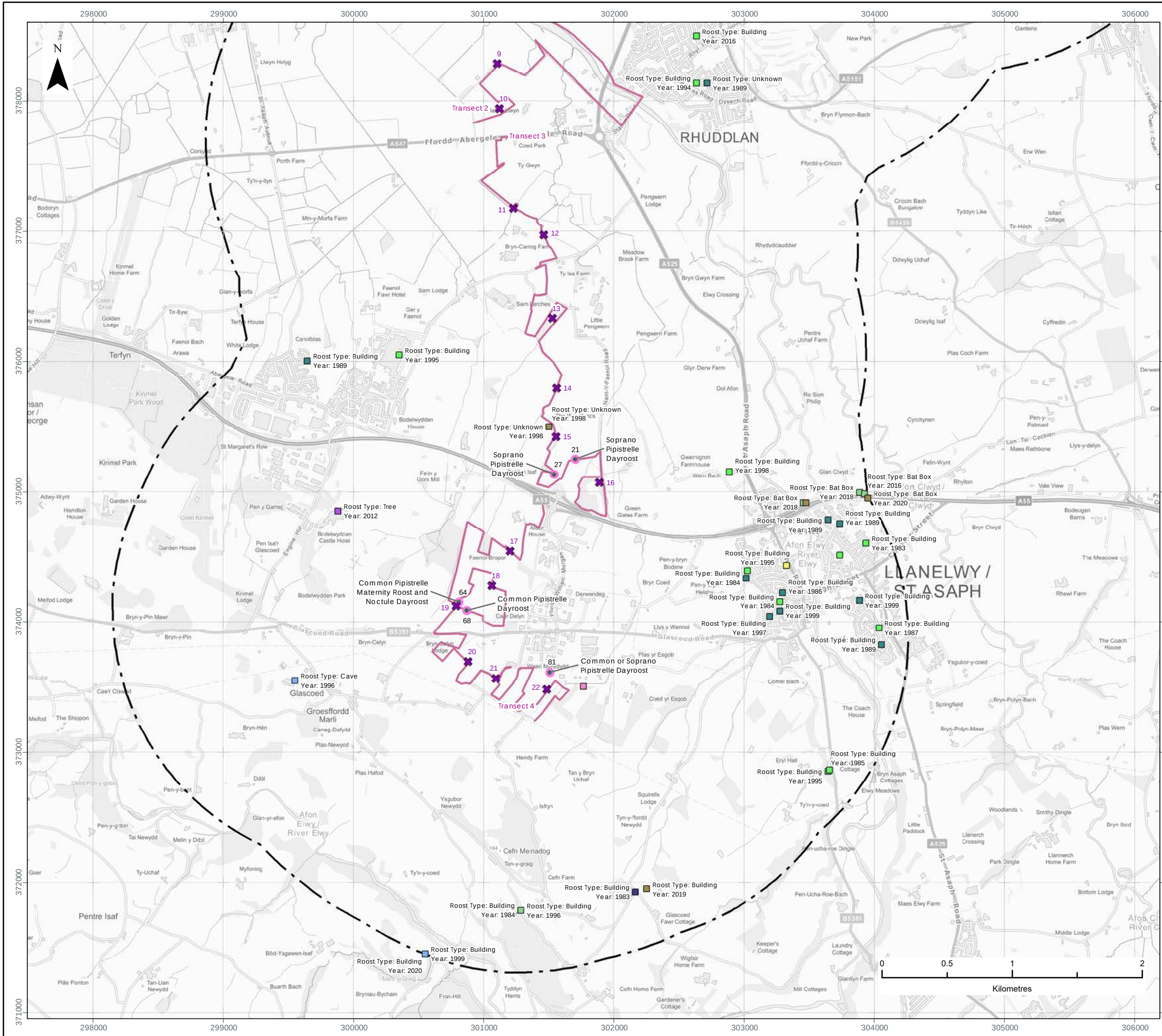
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FIGURE NUMBER:

FIGURE 3
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SCALE: 1:30,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm



LEGEND

- Draft Order Limits presented at Statutory Consultation 2 km Buffer
- 2021 Tree Roosts Recorded - Tree Number and Roost Type Labelled
- Static Bat Detector Location
- Bat Transect Survey Route

Cofnod Record Bat Roost (Species) - Roost Type and Year Labelled

- Brown Long-eared Bat
- Common Pipistrelle
- Lesser Horseshoe Bat
- Myotis Bat Species
- Natterer's Bat
- Noctule Bat
- Pipistrellus Bat Species
- Soprano Pipistrelle
- Unknown Bat
- Whiskered/Brandt's Bat agg.

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BAT SURVEY REPORT**

FIGURE TITLE:
**BAT SURVEY - PRE-EXISTING ROOST
RECORDS AND 2021 TREE ROOST RESULTS**

VER	DATE	REMARKS	Drawn	Checked
1	02/11/2021	Draft	JRS	JC
2	14/12/2021	Second Issue	JRS	JC

FIGURE NUMBER:

FIGURE 3
Page 2 of 2

SCALE: 1:30,000	PLOT SIZE: A3	DATUM: ODN	COORDINATE SYSTEM: British National Grid
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Fferm Wyrnt Alltraeth
AWEL Y MÔR
Offshore Wind Farm

APPENDIX 1

Tree Survey Scope Technical Note

Bat Survey of Trees

Background

This note relates to bat survey at trees that may be affected by the proposed onshore element of Awel y Môr Offshore Wind Farm. The proposed scope of these surveys has been revised subsequent to the recommendations made in the PEA. As a result of the number and context of trees potentially affected by onshore elements of the project, there is considered to be justification in differing from the BCT Guidelines. For clarity, the scope of bat activity surveys remains unchanged to that detailed in the PEA that was shared with NRW in Jan 2021.

The rationale has been informed by professional judgement, gained through direct experience on other large linear infrastructure projects involving landscape level tree loss and is based upon the following:

1. Tree roosting bats swap roosts a lot. This means that survey results in terms of roost locations are only as good as the day they were completed (this is much different to building roosts).
2. Sufficient survey will be undertaken for EIA; i.e. to determine the impacts to local bat populations, know where and how to avoid/mitigate/compensate for those impacts, and have confidence that an EPSL would be obtained (if necessary).
3. The results used to inform the EIA would be redundant at the time of construction: the survey would need to be re-scoped and undertaken in view of the final scheme design and footprint. Bat use of the landscape will likely have also changed in the interim/population trends may have altered such that impacts have changed.

The method proposed is based upon appropriate and proportionate techniques to inform the EIA, and focussed upon:

- accurately determining the potential roost resource that would be directly affected by the scheme. Potential impacts would be couched in terms of loss of potential roost features and a commitment made to mitigate for every/a very high proportion of moderate or high potential PRF lost.
- Determining the likely presence of locally significant bat roost(s) (i.e. locally rare species, or maternity colonies etc) within groups or lines of trees (if possible, but not necessarily identifying precise roost locations). Accepting that roosts used by small numbers of bats will occur, but may not be identified (at this stage) but would be mitigated (see first bullet).
- In combination with desk study data, and detail from the bat activity surveys already underway, enable robust assessment of impacts to the conservation status of local bat populations.

To be clear, the proposed method does not seek to pinpoint every small roost; this is because such roosts are highly dynamic (see point 1 above), with bats using a suite of potential roost features in any given season.

If the project is granted consent, a commitment would be made to resurvey every tree affected as part of pre-construction work, the season prior to work commencing, in accordance with BCT Guidelines or other best practice in place at that time. EPSL/mitigation requirements would then be determined as a result of those surveys, but ensured via the commitments made in the ES and secured through DCO Requirement.

Proposed Method to Inform EIA

All trees with bat roost potential which could potentially be affected by the project are shown on the attached plan. The trees on the attached plan are colour coded according to the ground-based assessment of bat potential already completed (red= high roost potential, orange = moderate, yellow = low, white = large tree difficult to assess from the ground, assumed high potential). Proposed survey methods for moderate and high potential trees are as follows:

1. Climbing inspection at all moderate or high potential trees (where safe to do so). This survey will be used to robustly determine the number and location of potential roost features.
2. Dusk emergence and dawn re-entry survey, with groups or lines of trees surveyed as discrete blocks. These are identified on the attached plan. All blocks would receive two visits, with those containing high potential trees receiving three. Surveyors will be equipped with full spectrum bat detectors and thermal imaging cameras in order to maximise the chances of detecting bats, record evidence of bat presence and identify bat species.

Outputs from Survey

The results would be used in combination with all other available bat data, including existing records and bat activity survey data, to:

- identify presence or likely absence of a locally significant bat roost that may be affected by the project.
- Determine the number of potential roost features that would be affected, in order that the loss of these can be adequately compensated/mitigated for.
- Enable an assessment of the potential impact of the scheme on the conservation status of the local bat populations.

Ongoing Review of Survey Methodology

An important part of the proposed method is the ability to adapt the method depending on the results as we go. Instances that would trigger review of the survey method (which may increase or decrease survey effort) include:

1. Re-evaluation of bat potential of a PRF following climbing inspection;
2. If the climbing inspection proves exhaustive such that bat absence/presence is conclusively known (in which case repeat climbs may be more appropriate than dusk or dawn visits); and/or
3. Suspected or confirmed presence of a significant roost.

APPENDIX 2

Tree Survey Results: Preliminary Inspection

The following table provides summary detail for each tree surveyed as identified on Figures 1 and 2. Tree numbers 82, 85, 92, 93 and 96 were initially identified as requiring survey but were later found to be unaffected by the scheme. No survey was undertaken at these, but the reference numbers have been retained in the tables below so as not to confuse readers. In such cases N/A is recorded in the climbing survey date and tree category columns.

Tree No.	Tag No.	Easting	Northing	Prelim inspection date	Climbing Survey Date	Lead climber/batworker	Tree Species	Diameter (m)	Height (m)	Potential Roost Feature (PRF) types present	Tree Category after climb
1	271	302828	379931	14/04/2021	28/07/2021	Emma Clarke	Oak	0.6	7	Crack/split, lifted bark, Rot hole	L
2	217	303364	379891	14/04/2021	28/07/2021	Emily Drinkwater	Sycamore	1.5	15	Crack/split, Rot hole	N
3	269	302868	379881	14/04/2021	28/07/2021	Emily Drinkwater	Sycamore	0.9	15	Dense ivy	L
4	226	303352	379872	14/04/2021	28/07/2021	Emily Drinkwater	Sycamore	0.7	11	Crack/split, Large hollow, Lifted bark	H
5	270	302882	379863	14/04/2021	28/07/2021	Rhian Hughes	Sycamore	1.3	20	Dense ivy	L
6	225	303331	379793	14/04/2021	28/07/2021	Emily Drinkwater	Oak	105	15	Crack/split, lifted bark, Rot hole, Woodpecker hole	M
7	223	302717	379512	14/04/2021	28/07/2021	Rhian Hughes	Sycamore	0.5	8	Crack/split, Rot hole, Tear out	M
8	222	302737	379480	14/04/2021	28/07/2021	Emma Clarke	Sycamore	0.7	4	Fallen deadwood	M
9	218	302620	379342	14/04/2021	28/07/2021	Emma Clarke	Oak	1.2	16	Rot hole, Tear out	L
10	215	302634	379336	14/04/2021	28/07/2021	Rhian Hughes	Oak	1	11	Tear out, pruning cut	L
11	216	302635	379324	14/04/2021	28/07/2021	Emily Drinkwater	Sycamore	0.5	11	Rot hole	N
12	219	302656	379315	14/04/2021	28/07/2021	Rhian Hughes	Oak	1.3	11	Branch end cavity/cracks, Rot hole	M
13	220	302772	379247	14/04/2021	28/07/2021	Emma Clarke	Oak	1	9	Crack/split, Large hollow, Lifted bark	M
14	221	302808	379241	14/04/2021	28/07/2021	Rhian Hughes	Oak	1.2	18	Crack/split	L
15	227	301339	377113	14/04/2021	27/07/2021	Emily Drinkwater	Willow sp	0.7	12	Crack/split, Lifted bark, Woodpecker hole	N
16	228	301484	376609	15/04/2021	27/07/2021	Emily Drinkwater	Oak	0.9	9	Branch end cavity/cracks, Crack/split, Rot hole	M
17	230	301432	376112	29/04/2021	27/07/2021	Emily Drinkwater	Oak	1.1	12	Crack/split, Rot hole, Tear out	H
18	229	301453	376054	29/04/2021	27/07/2021	Emily Drinkwater	Oak	1	9	Branch end cavity/cracks, Crack/split, Lifted bark	L
19	232	301690	375257	29/04/2021	27/07/2021	Emily Drinkwater	Oak	0.95	11	Rot hole	M
20	234	301746	375255	29/04/2021	27/07/2021	Emily Drinkwater	Oak	0.75	9	Crack/split	N
21	235	301705	375251	29/04/2021	27/07/2021	Emma Clarke	Oak	0.75	12	Rot hole	Roost
22	240	301413	375241	29/04/2021	27/07/2021	Emma Clarke	Oak	0.9	12	Pruning cut, Rot hole, Tear out	H
23	239	301436	375223	29/04/2021	27/07/2021	Emily Drinkwater	Oak	0.8	10	Crack/split, Rot hole	H
24	231	301809	375220	27/07/2021	27/07/2021	Emily Drinkwater	Oak	110	14.5	Crack/split, Rot hole	N
25	233	301613	375148	29/04/2021	27/07/2021	Emma Clarke	Oak	0.5	12	Rot hole	M
26	236	301610	375141	29/04/2021	27/07/2021	Emma Clarke	Oak	0.45	11	Light ivy	L
27	238	301542	375133	29/04/2021	27/07/2021	Emily Drinkwater	Oak	0.8	11	Crack/split, Rot hole, Tear out	L
28	237	301602	375131	29/04/2021	27/07/2021	Emma Clarke	Oak	1.1	13	Crack/split, Rot hole	L
29	281	301347	374926	20/07/2021	20/07/2021	Emily Drinkwater	Oak	0.8	14	Crack/split	N
30	282	301343	374901	20/07/2021	20/07/2021	Emily Drinkwater	Oak	0.9	14	Crack/split, Rot hole	N
31	284	301328	374866	20/07/2021	20/07/2021	Emma Clarke	Oak	1.4	13	Branch end cavity/cracks, Rot hole	N
32	283	301316	374861	20/07/2021	20/07/2021	Emma Clarke	Oak	1.5	12	Branch end cavity/cracks	M
33	289	301348	374776	20/07/2021	20/07/2021	Emma Clarke	Ash	0.9	14	Branch end cavity/cracks, Rot hole	M
34	288	301378	374744	20/07/2021	20/07/2021	Emily Drinkwater	Oak	0.75	14	Rot hole	N
35	285	301332	374738	11/09/2020	20/07/2021	Emily Drinkwater	Oak	1.05	12	Rot hole	M
36	287	301409	374729	11/09/2020	20/07/2021	Emma Clarke	Oak	1	12	Branch end cavity/cracks	N
37	286	301424	374712	11/09/2020	20/07/2021	Emily Drinkwater	Oak	1	14	Branch end cavity/cracks, Crack/split	L
38	279	301308	374592	11/09/2020	20/07/2021	Emma Clarke	Oak	0.8	9	None	N
39	267	300941	374562	16/04/2021	21/07/2021	Emily Drinkwater	Oak	1.15	18	long linear lightning strike with callus roll	M
40	278	301227	374508	11/09/2020	20/07/2021	Emily Drinkwater	Oak	0.95	14	No features.	N
41	277	301131	374506	16/04/2021	20/07/2021	Emily Drinkwater	Oak	0.8	14	Crack/split, Rot hole	L

Tree No.	Tag No.	Easting	Northing	Prelim inspection date	Climbing Survey Date	Lead climber/batworker	Tree Species	Diameter (m)	Height (m)	Potential Roost Feature (PRF) types present	Tree Category after climb
42	280	301245	374496	16/04/2021	20/07/2021	Emily Drinkwater	Oak	0.9	15	Rot hole	N
43	207	301074	374494	11/09/2020	30/07/2021	Emma Clarke	Oak	0.6	11	Branch end cavity/cracks, Rot hole	N
44	276	301085	374490	16/04/2021	20/07/2021	Emma Clarke	Oak	0.8	12	Branch end cavity/cracks, Tear out	N
45	275	301115	374477	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.75	10	N/A no features	N
46	268	300941	374422	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.65	10	Crack/split	N
47	274	301094	374414	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.7	10	Crack/split, Lifted bark	L
48	269	300972	374413	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.55	7.5	Crack/split, Lifted bark	N
49	282	300979	374411	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.8	17	Rot hole, Tear out	M
50	272	301086	374404	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.6	8	Crack/split, Large hollow, lifted bark, Rot hole, Tear out	H
51	270	301013	374394	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.6	8	Rot hole	N
52	271	301030	374390	16/04/2021	21/07/2021	Emma Clarke	Oak	0.8	12	Pruning cut	M
53	283	301043	374386	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.9	14	Crack/split, Tear out	N
54	273	301059	374383	16/04/2021	21/07/2021	Emma Clarke	Oak	1.5	16	Branch end cavity/cracks, Rot hole	L
55	266	300909	374361	16/04/2021	21/07/2021	Emma Clarke	Oak	0.9	12	Branch end cavity/cracks, Tear out	M
56	273	301077	374348	16/04/2021	22/07/2021	Rhian Hughes	Oak	0.45	7	Rot hole	N
57	281	300903	374343	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.7	8	Rot hole	M
58	265	300898	374327	16/04/2021	21/07/2021	Emily Drinkwater	Oak	0.65	9	Rot hole	M
59	274	301066	374313	16/04/2021	22/07/2021	Rhian Hughes	Oak	0.8	7.5	Rot hole	M
60	280	300892	374311	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.65	11	Lifted bark, Rot hole, Tear out	M
61	264	300818	374263	16/04/2021	23/07/2021	Emma Clarke	Oak	1.2	14	Large hollow	H
62	279	300909	374245	16/04/2021	21/07/2021	Rhian Hughes	Oak	0.7	12	Tear out	M
63	264	300873	374198	16/04/2021	22/07/2021	Emma Clarke	Oak	0.8	12	Rot hole	M
64	278	300810	374154	16/04/2021	22/07/2021	Rhian Hughes	Oak	1.05	14	Rot hole, tear out, Crack/split, Lifted bark	H
65	261	301014	374143	16/04/2021	22/07/2021	Emily Drinkwater	Oak	0.7	11	Crack/split, lifted bark, Rot hole	N
66	263	300810	374121	16/04/2021	22/07/2021	Emily Drinkwater	Oak	0.8	14	Crack/split, Rot hole	N
67	275	301003	374109	16/04/2021	22/07/2021	Rhian Hughes	Oak	0.55	13	Lifted bark, Rot hole	L
68	262	300870	374091	16/04/2021	22/07/2021	Emma Clarke	Oak	0.8	8	Branch end cavity/cracks, Crack/split, Large hollow, Rot hole	H
69	277	300878	374081	16/04/2021	22/07/2021	Rhian Hughes	Oak	0.7	10	Rot hole	N
70	276	300933	374064	16/04/2021	22/07/2021	Rhian Hughes	Oak	1.05	16	Large hollow, Rot hole	M
71	209	300878	373913	20/08/2020	22/07/2021	Emma Clarke	Oak	0.9	14	Rot hole	M
72	267	300829	373912	20/08/2020	Over road: no climb/PRA from ground	Rhian Hughes	Oak	0.8	13	Dense ivy, lifted bark, Tear out	M
73	265	301043	373910	16/04/2021	Over road: no climb/PRA from ground	Rhian Hughes	Oak	0.8	11	Lifted bark, Rot hole, Tear out	M
74	266	300850	373909	20/08/2020	Over road: no climb/PRA from ground	Emma Clarke	Oak	0.8	16	Branch end cavity/cracks, Rot hole	L
75	211	300740	373906	20/08/2020	Over road: no climb/PRA from ground	Emily Drinkwater	Oak	0.75	11	Crack/split, Dense ivy, Rot hole	M
76	268	300687	373900	20/08/2020	Over road: no climb/PRA from ground	Rhian Hughes	Oak	0.8	13	Dense ivy, lifted bark, Rot hole	L
77	212	300701	373899	20/08/2020	Over road: no climb/PRA from ground	Emma Clarke	Oak	0.8	14	Tear out	L
78	214	300749	373758	29/07/2021	29/07/2021	Emily Drinkwater	Oak	110	22	Crack/split, Rot hole	N
79	251	301518	373630	10/08/2020	23/07/2021	Emma Clarke	Oak	1.4	12	Branch end cavity/cracks, Large hollow, lifted bark, Rot hole, Tear out	H
80	242	300962	373620	20/04/2021	26/07/2021	Emily Drinkwater	Oak	0.9	10	Rot hole	M
81	250	301508	373616	20/04/2021	26/07/2021	Emily Drinkwater	Oak	0.75	10	Crack/split, Lifted bark	Roost
82	None	301037	373610	20/04/2021	N/A	N/A				N/A	N/A
83	248	301524	373607	26/07/2021	26/07/2021	Emily Drinkwater	Ash	0.2	9	Rot hole	N
84	247	301554	373603	10/09/2020	26/07/2021	Emily Drinkwater	Oak	105	14	Crack/split, lifted bark, rot hole, pruning cut with callus roll	N
85	None	301052	373602	20/04/2021	N/A	N/A				N/A	N/A

Tree No.	Tag No.	Easting	Northing	Prelim inspection date	Climbing Survey Date	Lead climber/ batworker	Tree Species	Diameter (m)	Height (m)	Potential Roost Feature (PRF) types present	Tree Category after climb
86	249	301539	373601	26/07/2021	26/07/2021	Emma Clarke	Oak	0.9	12	Crack/split	M
87	241	300948	373600	20/04/2021	26/07/2021	Emily Drinkwater	Oak	0.8	10	Rot hole	L
88	260	301356	373563	20/08/2020	23/07/2021	Emma Clarke	Oak	0.45	10	None	N
89	259	301342	373537	23/07/2021	23/07/2021	Emma Clarke	Oak	0.6	10	Rot hole	N
90	246	301525	373531	10/09/2020	26/07/2021	Emma Clarke	Oak	1	12	Branch end cavity/cracks, Crack/split, Rot hole	L
91	258	301332	373521	23/07/2021	23/07/2021	Emma Clarke	Oak	0.7	10	Branch end cavity/cracks, lifted bark, Rot hole	M
92	None	300912	373519	27/08/2020	N/A	N/A				N/A	N/A
93	None	300913	373513	20/04/2021	N/A	N/A				N/A	N/A
94	257	301333	373512	10/09/2020	23/07/2021	Emma Clarke	Oak	0.7	8	Rot hole	N
95	245	301509	373507	10/09/2020	26/07/2021	Emma Clarke	Oak	0.8	13	Crack/split	M
96	None	300933	373501	20/04/2021	N/A	N/A				N/A	N/A
97	244	301482	373482	26/07/2021	26/07/2021	Emily Drinkwater	Oak	1.5	10	Rot hole	M
98	252	301073	373469	20/08/2020	26/07/2021	Emma Clarke	Oak	0.9	12	Rot hole	N
99	256	301319	373449	23/07/2021	23/07/2021	Emma Clarke	Oak	1	12	Branch end cavity/cracks, Rot hole, Tear out	M
100	255	301331	373443	23/07/2021	23/07/2021	Emma Clarke	Oak	1.2	9	Branch end cavity/cracks, Rot hole	L
101	254	301340	373434	23/07/2021	23/07/2021	Emma Clarke	Oak	1.8	12	Branch end cavity/cracks, Crack/split, Lifted bark	M
102	253	301294	373434	23/07/2021	23/07/2021	Emma Clarke	Oak	1	14	Branch end cavity/cracks, Tear out	N
103	243	301482	373479	26/07/2021	26/07/2021	Emily Drinkwater	Oak	1	10	Branch end cavity/cracks, Crack/split, Large hollow	M
104	300	301706	374905	19/07/2021	19/07/2021	Emma Clarke	Willow sp	0.3	10	Rot holes	L
105	299	301706	374909	19/07/2021	19/07/2021	Emma Clarke	Dead	0.3	12	Callus roll	M
106	298	301738	374973	19/07/2021	19/07/2021	Emma Clarke	Oak	0.35	12	Crack/split	N
107	297	301748	375005	19/07/2021	19/07/2021	Emma Clarke	Dead	0.32	11	Lifted bark	M
108	296	301760	375051	19/07/2021	19/07/2021	Emma Clarke	Dead	0.25	8	Tear out, woodpecker hole, crack/split	M
109	295	301750	375041	19/07/2021	19/07/2021	Emma Clarke	Ash	0.36	14	Knot hole	N
110	294	301756	375029	19/07/2021	19/07/2021	Emma Clarke	Willow sp	0.24	11	Rot hole	M
111	293	301757	375029	19/07/2021	19/07/2021	Emma Clarke	Elm sp.	0.3	10	Large hollow, rot holes	M
112	292	301749	374999	19/07/2021	19/07/2021	Emma Clarke	Willow sp	0.3	9	Rot hole, crack/split	L
113	291	301784	374995	19/07/2021	19/07/2021	Emma Clarke	Willow sp	0.35	12	Tear out, callus roll	M
114	290	301768	374954	19/07/2021	19/07/2021	Emily Drinkwater	Ash	0.25	12	Rot hole	L
115	300	301923	374893	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.6	12	Crack/split, Lifted bark	L
116	298	301931	374945	19/07/2021	19/07/2021	Rhian Hughes	Sycamore	0.4	20	Crack/split	L
117	299	301922	374949	19/07/2021	19/07/2021	Rhian Hughes	Sycamore	0.4	20	small cavity	M
118	297	301899	374974	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.5	18	Tear out	L
119	296	301889	375021	19/07/2021	19/07/2021	Rhian Hughes	Oak	40	18	Tear out, basal cavity	L
120	295	301858	375085	19/07/2021	19/07/2021	Rhian Hughes	Silver birch	0.35	12	Tear out	L
121	289	301783	375042	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.4	20	Tear out	N
122	290	301768	375036	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.4	20	Rot hole	L
123	291	301788	375060	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	40	20	Crack/split	N
124	292	301758	375070	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	20	14	Rot hole	L
125	293	301757	375084	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	40	18	Large hollow	L
126	294	301812	375079	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.15	11	Large hollow	L
127	288	301785	375030	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.35	18	Large hollow	L

Tree No.	Tag No.	Easting	Northing	Prelim inspection date	Climbing Survey Date	Lead climber/ batworker	Tree Species	Diameter (m)	Height (m)	Potential Roost Feature (PRF) types present	Tree Category after climb
128	286	301874	374917	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.4	10	Large hollow, Tear out	M
129	287	301809	374989	19/07/2021	19/07/2021	Rhian Hughes	Willow sp	0.4	18	Crack/split	L
130	285	301849	374889	19/07/2021	19/07/2021	Rhian Hughes	Ash	0.5	28	Tear out	N
131	284	301814	374957	19/07/2021	19/07/2021	Rhian Hughes	Silver birch	0.4	25	Rot hole, Tear out	M

The following tables include full details for each PRF at each tree. Tree numbers 82, 85, 92, 93 and 96 were initially identified as requiring survey but were later found to be unaffected by the scheme and scoped out. No climbing survey was undertaken at these, but the reference numbers have been retained in the tables below so as not to confuse readers.

tree_number_on_plan	1	2	3	4	5
tag_number	271	217	269	226	270
prf_1_type	Rot hole	Rot hole	Dense ivy	Crack/split, Large hollow	Dense ivy
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	3.5, SW, T	4,W,B	1-15,na,TB	1,SE,T	1-15,e,tb
prf_1_description	Rot hole 10x8cm on middle of rotting trunk near to only branch. Only goes back 5cm and is very open	Small rot hole, superficial, not suitable	Dense ivy, some stems are 10cm wide. The very top of the tree is ivy free.	Buttress rot with cracks and splits between 1-2.5m high facing SE, numerous cavities facing upwards, the largest one in the middle is open on top and unsuitable in point weather but could be used temporarily if the weather is good. The best cavity is located on the right hand side under the callus roll and extends upwards approximately 40cm.	Dense ivy all over lower trunk concentrated on the Eastern side but also present on the west but up to 10m. Ivy itself is low but any features would be covered by ivy
prf_1_category	L	N	L	H	L
prf_2_type	Lifted bark	Crack/split			
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	2-3, N, T	3,WNW,T			
prf_2_description	Lifted bark panel 1m high and wraps around the trunk which is open to the top/side but would provide some shelter if bat was desperate. Bark may fall off in the near future/tree is close to falling too.	35cm split where the trunk has fused together, superficial feature with a depth of no more than 2cm. Not suitable			
prf_2_category	L	N			
tree_category_after_climb	L	N	L	H	L
full_inspection_possible	yes	yes	no	yes	no
TreeClimb Notes	Tree is completely dead and not particularly stable, could fall down very soon.	Features can be reached with a ladder	No rot holes at the top where the ivy isn't present. Not climbable without disturbing the ivy below.	Some small areas of lifted bark at about 8m, but all superficial and not suitable, high potential feature can be inspected from the ground. No need to climb.	Not climbed due to ivy, ivy may hide other features

tree_number_on_plan	6	7	8	9	10
tag_number	225	223	222	218	215
prf_1_type	Crack/split,Lifted bark,Rot hole	Tear out	Fallen deadwood	Tear out	Rot hole,pruning cut
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7,NE,B	5m,sw, b	N/a	5.5, SW, T	4.5,s,t
prf_1_description	Flaky bark goes in a couple of cms but very open, superficial, unsuitable	Opening approx. 13cm x8cm, definitely hole goes in but not safe to climb	Tree has recently snapped in half at about 2 meters and is precariously leaning on others, not safe to climb or to inspect fully around. Precautionary category given for this reason	Tear out with healed bark around deadwood, there is a small cavity under the bark on the south side but only goes back 2-3cm and is very exposed to the front	In centre a hole 3x3cm, extends horizontally towards trunk by 5cm. Some other flakey bark around pruning cut but very shallow
prf_1_category	N	M	M	N	L
prf_2_type	Wood pecker hole	Crack/split		Lifted bark	Tear out
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	9,NNE,T	4m, e, b		4, SW, B	4m,n,b
prf_2_description	4x4cm entrance, lots of debris, goes downwards 8cm, goes horizontally into the trunk 15cm, goes upwards about 5cm .	Rotten branch to easy, ROTTEN, 40CM long x 5cm along length, opens up at the top end. Very open exposed		On lower branch in base of crown there is dead wood with some areas of lifted bark or possible cavities around callus rolls when viewed from the ground however they are very open or superficial on closer inspection	Dead timber remaining, died off in middle. Goes in by 4cm into hollow of branch. Entry 3x2cm
prf_2_category	M	L		N	L
prf_3_type	Wood pecker hole	Rot hole		Tear out	Tear out
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	8,NNE,T	4.8m,sw,b		8, NE, B	1.8, s,t
prf_3_description	4x5cm entrance, goes up 10cm, goes in and down 8cm and then gets very wet and full of debris, goes upwards 10cm	Small cavity approx. 3x3, looks like it goes in		Where the trunk forks there is a tear out, the callus roll around it is sealed to the dead wood within and there is no sufficient cavity	Callus roll surrounding dead timber. Entry 1x3cm but only goes in about 2cm.
prf_3_category	M	M		N	L
prf_4_type	Crack/split, Rot hole	Rot hole			
prf_4_height_m_aspect_nesw_trunk_or_branch_tb	9,N,B	3m,sw, b			

tree_number_on_plan	6	7	8	9	10
prf_4_description	Bottom hole, faces upwards entrance 15x7cm, then it goes upwards towards the end of the branch but there is light at the end at a 4x4cm hole. Too open and light all the way through.	Rot hole, 8x6cm can see light from the end but cavity may continue			
prf_4_category	N	M			
prf_5_type	Crack/split, Large hollow, Rot hole	Large hollow			
prf_5_height_m_aspect_nesw_trunk_or_branch_tb	7, NEE, T	4.5cm, ne, t			
prf_5_description	30cm wide entrance by 10cm, goes in 40cm horizontally into the trunk, size of a fist at the end, most of it is a large hollow 15cm high, some dead wood inside.	Large cavity down hole of trunk, facing up			
prf_5_category	L	L			
prf_6_type	Crack/split, Tear out				
prf_6_height_m_aspect_nesw_trunk_or_branch_tb	6.5, SE, T				
prf_6_description	Starts at 6.5m and goes upwards to 9.5m. Tear out with a crack running from top to bottom. The top of the feature is very open approx. 8cm wide and very shallow approx. 5cm and not suitable, the lower section is just as wide and goes in approx. 8cm but is again very open and shallow and not suitable. At the bottom there is a 40cm hole with dead wood coming down creating a channel to go up, then it goes up about 70cm up the trunk but opens out to a split at the side which faces north west.				
prf_6_category	L				
tree_category after climb	M	M	M	L	L
full_inspection_possible	yes	no	no	yes	yes

tree_number_on_plan	6	7	8	9	10
TreeClimb Notes	A few other areas of dead wood and cracks but all superficial and not suitable.	Not safe to climb	Not climbed and unable to inspect fully due to risk of tree falling. Tag on NW extending branch for this reason	Climbed	

tree_number_on_plan	11	12	13	14	15
tag_number	216	219	220	221	227
prf_1_type	Rot hole	Rot hole	Lifted bark	Crack/split	Wood pecker hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	4,E,T	4.5, nw, t	3, NE, T	3m se b	9,NNE,B
prf_1_description	Small rot hole, entrance is 4x4cm, no cavity, superficial about 1-2cm almost flush against trunk.	Rot hole, 8cmx7cm, up facing, bowl shaped, detritus in bottom, no shelter	Large bark plate, which goes about 40cm across from edge of large tear out/missing half of trunk but is open at the top	Small split on top of branch 10x3cm, went in a couple of cm	Entrance approx., 5x5cm, goes downwards 10cm and up 15cm. Likely have been a woodpecker roost, enough space for bats above
prf_1_category	N	N	L	L	M
prf_2_type	Rot hole	pruning cut	Tear out		Wood pecker hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	4,N,T	5m,s,b	4, E, T		5,N,B
prf_2_description	Rot hole entrance approx 10x8cm, superficial, 1-2cm inwards, almost flush against the tree	Pruning cut with some timber remaining, entrance 4x4cm but gets narrower, down to 2x2cm. Goes in 15cm, horizontal so dry. Also gaps all round callus roll, max 12cm in. North side has larger entry, 2cm wide, remaining entry is 1cm	Large tear out from base of tree to 4m, the damage goes all the way through to the other side at the top. Within tear out scar/ dead wood there are some areas which may provide shelter for one or two bats, sheltered from above by rest of tree/callus roll		Sites of woodpecker test holes and peeling bark, no suitable cavities
prf_2_category	N	H	M		N
prf_3_type	Rot hole	Rot hole			Crack/split, Tear out
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	4.1,N,T	4.5m,sw,b			3.5,S,T
prf_3_description	Small rot hole entrance is approx 4x4cm, flush against tree no cavity	3cmx1.5cm entry goes in about 7cm, hole just above dead timber. Detritus present			Long tear out starting at 3m, extending upwards approximately 1.5m, with some splits going lengthways up it. All superficial features and not suitable
prf_3_category	N	L			N
prf_4_type		Lifted bark			
prf_4_height_m_aspect_nesw_trunk_or_branch_tb		3.5,se t			
prf_4_description		Large bark flake round snapped out large stem. Very open and exposed. Top of feature is bowl shaped and detritus			
prf_4_category		N			
tree_category after climb	N	M	M	L	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes				Very few features	Some other areas of dead wood but superficial and not suitable

tree_number_on_plan	16	17	18	19	20
tag_number	228	230	229	232	234
prf_1_type	Crack/split	Rot hole	Crack/split	Rot hole	Crack/split, Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	4.5,E,T	6, N, T	5, NE, B	6.5,W,T	6.5,NE,T
prf_1_description	Pruning cut with cracks running down, all superficial, not suitable	Long slit (1m) on trunk with 4cm rot hole at the top, cavity goes upwards 60cm	Large crack/cavity, open at the top more suitable for bird nesting	Small rot hole at base of deadimb, entrance is 3x5cm, extended inwards towards the trunk only 5cm, open, not suitable	Two part rot hole below 10x4cm and 3x3cm above, entrances superficial, not suitable
prf_1_category	N	H	N	N	N
prf_2_type	Crack/split, Large hollow	Rot hole	Lifted bark	Rot hole	Crack/split
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	1,SWW,T	7, N, T	7.5, SE, B	5.5,N,T	5.5,W,B
prf_2_description	Buttress cavity extends 70cm upwards into the trunk, some leaves inside, potentially remnants of nesting small mammals or cash's, some potential for bats above.	Rot hole above previously described, it is wet inside, 2x8cm and only goes in about 5cm	Lifted bark, several large plates but open on both sides, not providing good shelter for a bat, may be used if desperate	Shallow rot hole, 3x3cm, wood hasn't rotted away, superficial unsuitable	Several cracks, most holes are 2-3cm across and superficial, further up there is a hole at the top which would allow water in, bird nesting material found, too open for bats
prf_2_category	M	N	L	N	N
prf_3_type	Crack/split, Rot hole	Crack/split, Tear out		Rot hole	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	3.5,SE	5, N, B		4,N,T	
prf_3_description	2x1cm entrance, extends inwards 6cm. Potential for a single bat	Crack on under side of tear out with 3x2cm opening and cavity going 25cm down towards trunk but is open from above where branch broke		Small rot hole, 4x4cm entrance and extends horizontally into the trunk approximately, 15cm.	
prf_3_category	L	N		L	
prf_4_type				Crack/split	
prf_4_height_m_aspect_nesw_trunk_or_branch_tb				3,W,T	
prf_4_description				Pruning cuts with fissures/cracks, all facing upwards, not suitable	
prf_4_category				N	
prf_5_type				Rot hole	
prf_5_height_m_aspect_nesw_trunk_or_branch_tb				1,E,T	
prf_5_description				Small rot hole on trunk base, entrance 8x3cm, extends upwards by 10cm. Can be checked from ground.	
prf_5_category				M	
tree_category_after_climb	M	H	L	M	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Easy tree to check, very small, features are low down. Still requires a climb	Climbed	Climbed	The lower moderate feature cab be endoscoped from the ground	

tree_number_on_plan	21	22	23	24	25
tag_number	235	240	239	231	233
prf_1_type	Rot hole	Pruning cut	Rot hole	Crack/split, Rot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	1.5, SW, T	7, NE, B	8, SW, B	3, SE, T	3, S, T
prf_1_description	Rot hole 30cm by 10cm, with dead heartwood 7cm back. Bat poo found at base and in cobwebs. At the top there is a cavity extending upwards by more than 30cm. Bat found with endoscope on left side	Pruning cut, at the top of the dead wood there is a 20cm long gap following the edge of the dead wood/under healing bark, 3cm wide entrance and 5cm deep going back. Fairly open	Rot hole 4x4cm entrance, the feature splits into two, the left side has light coming but the right hand side has a substantial cavity which extends upwards 60cm.	Pruning cut with callus roll and splits. All features are shallow or upward facing, not suitable	Knot hole which is 3x5cm at entrance and 10cm going back sheltered from above
prf_1_category	Roost	L	H	N	M
prf_2_type	Rot hole	Tear out	Rot hole	Crack/split	Pruning cut
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	3, SW, T	6, SE, B	2.5, W, T	3.5, NW, T	2.5, SE, B
prf_2_description	Pruning cut with possible cavities either side however not climbed due to risk of disturbing bat roost below further	Tear out with gap above old branch/deadwood and under healing bark, cavity under bark at top and also down about 25cm towards branch union on east side, sheltered from above and with some dead wood inside which could be crawled behind	Rot hole in pruning cut, at the top there is an irregular opening approximately 5x5cm that extends inwards towards the trunk 8cm. Fairly open so unlikely	Pruning cut with cracks running down the middle, too shallow for bats	Old pruning cut on lower branch with cavity where healing bark meets dead wood at top, on east side, goes back about 10cm towards trunk but fairly open at front. Further holes at the bottom but downward facing with no roof.
prf_2_category	M	M	L	N	L
prf_3_type		Rot hole	Rot hole		
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		2.5, S, T	2, W, T		
prf_3_description		Rot hole at the top and side of old pruning cut, goes in underneath bark about 20-25cm. There is also a crack through the centre which goes 10cm back. Good and sheltered, space for a few bats	Series of small holes on the trunk grouped together, most are superficial, there is one larger hole only suitable for a birds nest, very open 10x5cm entrance and a bowl shaped cavity approximately 10x10cm		
prf_3_category		H	N		
tree_category_after_climb	Roost	H	H	N	M
full_inspection_possible	no	yes	yes	yes	yes
TreeClimb Notes	Confirm roost found from ground, higher feature can be climbed but wasn't on this occasion due to risk of disturbance	Climbed		Some other areas of dead wood and very small rot holes, all superficial	Climbed

tree_number_on_plan	26	27	28	29	30
tag_number	236	238	237	281	282
prf_1_type	Light ivy	Tear out	Rot hole	Crack/split, Lifted bark	Crack/split
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	2-7, T	4.5,SSW,B	5, W, B	6,S,B	7,SW,B
prf_1_description	Covering of ivy on stem, very small chance it would be covering a feature, not dense enough to be feature on it's own	Tear out with some splits, no suitable cavity, all shallow	Two holes on dead branch in base of crown, connected by 5cm cavity, fairly open	Dead limb with splits and lifted bark, superficial	Splits in dead limb with two small holes at the base, one goes in 10cm
prf_1_category	L	N	L	N	L
prf_2_type		Crack/split, pruning cut with rot hole	Dead branch ,Tear out		Crack/split, Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		3.5,SW,T	8, N, B		8,ESE,B
prf_2_description		Pruning cut with a rot hole, bowl shaped, entrance is 15x10cm and then goes in about 10cm, not suitable for bats, potential usage for birds only.	Large dead branch/spilt which looked like it might have a cavity from the ground, when climbed these were superficial and too open/exposed		Dead limb with splits and two holes at the bottom
prf_2_category		N	N		N
prf_3_type		Wood pecker hole			
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		4.5,N,T			
prf_3_description		Woodpecker feeding hole, superficial			
prf_3_category		N			
prf_4_type		Wood pecker hole			
prf_4_height_m_aspect_nesw_trunk_or_branch_tb		6.5,N,T			
prf_4_description		Woodpecker feeding hole superficial			
prf_4_category		N			
prf_5_type		Rot hole			
prf_5_height_m_aspect_nesw_trunk_or_branch_tb		3,NE,T			
prf_5_description		Small rot hole, entrance is 5x5cm extended I wards about 4cm, very shallow not suitable			
prf_5_category		L			
tree_category after climb	L	L	L	N	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Not climbed, no obvious features	Roost located PRF5 during dawn survey on 23/07	Climbed	Few other dead limbs but no features within	

tree_number_on_plan	31	32	33	34	35
tag_number	284	283	289	288	285
prf_1_type	Rot hole	Branch end cavity/cracks	Rot hole	Rot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	8, E, B	5, SE, B	6, SE, B	6,SE,B	8,NEE,B
prf_1_description	Rot hole on large upward branch on field side, 4cm diameter at opening, cavity goes in horizontally 10cm, like a bowl good for birds, too light and open to elements for bats	2 cracks in the end of broken branch, higher one extends 5cm up and is sheltered	Large knot hole with upward reaching cavity, extends 10cm inside tree narrowing as it goes up, dry and sheltered	Small rot hole superficial	Rot hole with callus roll superficial
prf_1_category	N	M	M	N	N
prf_2_type		Branch end cavity/cracks	Branch end cavity/cracks	Crack/split	Large hollow, Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		5, SW, B	8, S, B	8,W,B	9,E,B
prf_2_description		Large split at the end of big broken limb the crack is 50cm but is exposed on the sides t and curves upwards meaning water would run inside	Dead branch with cracks cavities, but they are open to the elements not providing sufficient shelter	Hazard beam split, too narrow	Long rot hole/cavity with callus roll, the centre goes in about 5cm, very shallow
prf_2_category		L	N	N	L
prf_3_type		Crack/split		Rot hole	Crack/split
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		3, NW, B		5,NE,B	7,SW,B
prf_3_description		Broken branch no crack with significant cavity		Small rot hole on dead branch superficial	Snapped off branch with split at the end, extends inwards about 15cm, cavity large enough for a bat.
prf_3_category		N		N	M
prf_4_type				Rot hole	
prf_4_height_m_aspect_nesw_trunk_or_branch_tb				9,E,B	
prf_4_description				Small rot hole superficial	
tree_category after climb	N	M	M	N	M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	There are other dead limbs on ends of branches however no potential. Climbed	Tag is on branch on left hand side when looking from track, as the trunk is icy covered. Tree climbed, features checked.	Climbed and all features inspected	Climbed, all features superficial, did not extend further than 2cm or flush.	One feature with potential.

tree_number_on_plan	36	37	38	39	40
tag_number	287	286	279	267	278
prf_1_type	Branch end cavity/cracks	Branch end cavity/cracks, Crack/split, Rot hole	n/a	lightening strike, callus roll	N/A
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7, SE, B	7	N/a	0.5m, WNW, T	N/A
prf_1_description	Broken branch but looks solid/ no big cracks large enough for a bat	Cut off limb with rot holes and splits	N/a	Long linear feature starting at the base of the tree continuing upwards 4.5m, on the right hand side there are a few deeper cavities at 10cm depth (middle section) with moderate potential, lower section right hand side goes in 12-15cm with low potential (being close to the ground). Really open at the top, but one area goes in 8cm with low potential. But overall its moderate.	N/A
prf_1_category	N	L	N	M	N
prf_2_type				Rot hole	
prf_2_height_m_aspect_nesw_trunk_or_branch_tb				4.5, E, B	
prf_2_description				Small rot hole above a pruned forked branch, extends 20cm to the NNE into the trunk.	
prf_2_category				M	
prf_3_type				Branch end cavity/cracks	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb				8-11, N, B	
prf_3_description				Callus roll, wood inside rotted away, goes in horizontally 10cm with open sides, unlikely.	
prf_3_category				L	
tree_category after climb	N	L	N	M	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Large oak but solid no features, not climbed	One split is open at the top but has enough space for a bat, could be used in good where opportunistically. But unlikely.		Climbed, the best cavity is the around the lightening strike.	Tree with no features

tree_number_on_plan	41	42	43	44	45
tag_number	277	280	207	276	275
prf_1_type	Crack/split	Rot hole	Rot hole	Tear out	N/A
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7,ESE,B	6,SE,B	5, S, B	6, S, B	N/A
prf_1_description	Hazard beam, fibrous splits, top and middle section through and through not suitable, lowest splits are 5-8cm deep and vertical, could be place for an opportunistic single bat.	Rot hole with callus roll, some of the bark plate still left inside, small hole	On a dead branch there is a rot hole 3x3cm, climbed to and only goes in 4cm back and doesn't extend either way along branch	Where branch has fallen off there is rotten wood, tree climbed and there is no cavity extension up or down	N/A
prf_1_category	L	N	N	N	N
prf_2_type	Crack/split,Rot hole	Rot hole			
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	5,NE,B	5,E,B			
prf_2_description	Dead limb with splits and a rot hole, superficial or very open to water ingress, not suitable	Rot hole with callus where a branch has rotted away. Doesn't extends upwards just horizontally into a bowl shape 15cm across, 10cm into tree, wide entrance, more likely to be used by birds.			
prf_2_category	N	N			
tree_category after climb	L	N	N	N	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Ome low feature, would be worth a climb to rule a bat out if works to this tree are proposed.	Some other areas of dead wood but no features			No features ruled out

tree_number_on_plan	46	47	48	49	50
tag_number	268	274	269	282	272
prf_1_type	Crack/split	Crack/split, Lifted bark ,Rot hole	Lifted bark	Tear out	Tear out
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	4.5,ESE,B	3,NW,T	4,SSW,T	3m,sw, t	3.5, se,t
prf_1_description	Linear split in the side of a branch, with some callus roll, shallow feature, open to elements, not suitable, checked with a climb	The feature starts at 3m and extends to 6m, includes lifted bark with callus roll either side and two dead cut off branches with numerous splits but most are vertical. On the lower dead branch there is a rot hole that extends 15m horizontally into the trunk, more likely for birds or small mammals.	Lifted bark around a rot hole, superficial, lifted bark has no suitable cavities, checked	1 feature with multiple entrances. Lower entrance approx. 1.5x2cm round remains of old branch, mouse present. Top entrance 15cm diameter with fist size stump, some gaps up to 5-10cm round it. Lots of Chambers, joins up with the lower feature	Cavity round remains dead branch, approx. 5cm deep
prf_1_category	N	L	N	H	M
prf_2_type		Crack/split	Crack/split		Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		7,SW,B	5.5,SSW,B		3.5, se, t
prf_2_description		Dead cut off branch with split above, superficial	Some cracks and splits around broken limb, superficial, no suitable cavities, climbed.		Knot hole, 3cm
prf_2_category		N	N		L
prf_3_type					Tear out
prf_3_height_m_aspect_nesw_trunk_or_branch_tb					4m, nw,t
prf_3_description					Large tear out, cavity goes down approx 30cm, nice and dry
prf_3_category					H
prf_4_type					Large hollow
prf_4_height_m_aspect_nesw_trunk_or_branch_tb					5m, se, b
prf_4_description					Hollow branch, very open
prf_4_category					L
prf_5_type					Large hollow
prf_5_height_m_aspect_nesw_trunk_or_branch_tb					3.5m,nw, t
prf_5_description					Goes through to hollow on other side, large cavity, dry
prf_5_category					H
tree_category_after_climb	N	L	N	M	H
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes		Other areas of dead limbs and splits but of no suitability		Moderate due to low number of features	Lots of features, nice cavities

tree_number_on_plan	51	52	53	54	55
tag_number	270	271	283	273	266
prf_1_type	Rot hole	Pruning cut	Tear out	Branch end cavity/cracks	Tear out
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	3,E,T	12, SE, T	3.5	6, SE, B	8, NE, B
prf_1_description	Rot hole, superficial, does not extend more than 3cm. Feature reached from ground with torch/endoscope	Old pruning cut where healing bark is coming away from rotting heartwood creating a cavity which extends back towards trunk 30cm, top section would likely stay dry	Tear out, doesn't go in	Decaying branch with a crack on the underside which goes in no more than 5cm, sheltered from above but open to wind at end and from underneath	Rot hole at the bottom of tear out extends down, for about 15cm, full of mulch. Above rot hole rolling bark has cavity behind stretching in horizontally around 15cm
prf_1_category	N	M	N	L	M
prf_2_type		Pruning cut	Lifted bark	Rot hole	Tear out
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		2.5, S, B	3.5, sw, t	4, SE, T	8, E B
prf_2_description		Another cavity between heartwood and bark on pruning cut but fairly open, would likely get wet due to entry being upward facing	Sections of flaking barks, tree been pruned. Light goes through top to bottom. No where to roost	Pruning cut with rot hole which goes back 10cm but is open and not dark apart from at very top, more suited to birds	Upward facing tear out (not easily visible from below) some very small gaps under rolling bark however not sufficient to provide shelter
prf_2_category		L	N	L	N
prf_3_type		Rot hole		Crack/split	Pruning Cuts
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		2, N, T		3.5, SE, T	5, SE, T
prf_3_description		Small rot hole on old broken branch, only goes back 5cm, can easily be checked from the ground		Another pruning cut next to above, this time with a crack which goes back about 10cm but is open to elements and the entry point is very cluttered	Pruning cut with a callus roll, 5cm gap under the rim of the bark following above the heartwood of old branch
prf_3_category		L		L	L
tree_category_after_climb	N	M	N	L	M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Few other areas of dead wood but no suitable features	Climbed - All features checked	Few features present, in tact large oak		Other features include dead branches with superficial fractures and splits

tree_number_on_plan	56	57	58	59	60
tag_number	273	281	265	274	280
prf_1_type	Rot hole	Rot hole	Rot hole	Rot hole	Tear out
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	3.5,e,b	3.5m,w,t	3W,T	4m s b	5m,ne,b
prf_1_description	Rot hole with timber still remaining in. No crevices	Gap round remaining branch from pruning wound. Entrance 4cm high 20cm, 18cm deep, dry	Collection of three rot holes on trunk. Top left rot hole, 5cm bowl, doesn't extend vertically, more likely for birds	Rot hole, doesn't go anywhere. Dead wood present	Tear out starting at 4 m -6m. Some peeling bark however quite open and exposed. Cracks present but exposed and upwards facing so water would get in. Cavity present, 15cm opening however facing upwards so would be wet
prf_1_category	N	M	N	N	L
prf_2_type		Rot hole	Rot hole	Rot hole	Tear out
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		4m,n,b	3,W,B	4 se t	5m, sw b
prf_2_description		Knot hole, had dead timber in which fell out, approx 8cmwidex6cm facing upwards, very wet inside	Between two small branches, 2cm circular hole, goes in horizontally 7cm, unsuitable for bats, more likely birds	Knot hole, entrance 5cm x 5cm, downwards about 12cm into cavern but very dry, bird nest material present	Bark has callus rolled, gap 2-3cm all round remaining dead timber, goes 10cm down but wet
prf_2_category		N	N	M	L
prf_3_type		Large hollow	Rot hole	Rot hole	Branch end cavity/cracks
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		0m,e,t	3,W,B	4,e, t	4.5,se, b
prf_3_description		Large basal cavity,entrance approx 12cm, up about 20cm, dry	Rot hole with callus wood, 8cm upwards narrow but large enough for a single bat, also goes down 5cm but the space is too narrow for birds.	Pruning cut, callused over, entrance 2cm wide and 10cm along curve. Goes in about 12cm downwards but dry	2cmx10cm open cavities at branch end where bark flakes, and callus present. 3 of above gaps
prf_3_category		L	M	M	M
prf_4_type		Tear out	Rot hole		Lifted bark
prf_4_height_m_aspect_nesw_trunk_or_branch_tb		2.5, e, t	8,W,B		4m,s,b
prf_4_description		As tree splits, North stem, gap above remains of branch, 8cm long, 2cm wide, in about 8cm, dry	Two adjacent rot holes, very small, climbed, no cavity		Dead branch with flaking bark. Quite open, limited potential
prf_4_category		M	N		L
prf_5_type			Crack/split,Lifted bark		Crack/split
prf_5_height_m_aspect_nesw_trunk_or_branch_tb			7.5,N,B		5.5,w,b
prf_5_description			Two splits in the bark at the base of a dead limb, superficial, not suited, climbed and ruled out.		Dead branch, rot hole approx 10cm, hole extends 25cm to trunk but crack along top and too open, water and light would get in
prf_5_category			N		N
prf_6_type			Crack/split,Lifted bark		Rot hole
prf_6_height_m_aspect_nesw_trunk_or_branch_tb			7,SE,B		4, w,b
prf_6_description			Split lifted bark at base of dead stem, superficial, not unsuitable, climbed and ruled out		Knot hole, goes in max 10cm but very narrow. Quire wet and lots of detritus present
prf_6_category			N		L
tree_category_after_climb	N	M	M	M	M

tree_number_on_plan	56	57	58	59	60
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes			One feature with potential for a single bat. The tree contains numerous areas of dead wood and flaking bark but with no other suitable features.	Other dead bits of wood, no potential	Some other peeling bark but no potential. On West Side dead branch with large split but very open not checked but still considered full inspection

tree_number_on_plan	61	62	63	64	65
tag_number	264	279	264	278	261
prf_1_type	Large hollow	Rot hole	Rot hole	Rot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	0, E, T	8m, e, t	8, E, B	2.2m,se,t	5m,W,B
prf_1_description	Large basal cavity entrance 1m high and 60cm wide at base coming to a point at the top, goes up 50cm above entrance, 20cm wide cavity, there is a chamber to the right that extends to the edge of the trunk, a chamber at the back extends upwards approx 70cm. The left chamber goes upwards 40cm. There are also two slits at the back of the main chamber which are both filled with cobwebs they are about 2cm wide, the left hand one goes inwards 10cm and the right 40cm.	Rot hole where branch dies away, only goes in a few cm, quite superficial	Knuckle on large branch which has too entrance points which are connected, although one hole is downward facing the other is upwards so the feature is open to elements, some cover to the sizes, potential to be used by one or two bats	4cm entrance in circle, horizontally it extends 25cm, vertically upwards it extends 60cm	3cm by 3cm entrance, full of wood pulp, open section is very shallow approx 4cm in all directions, bot suitable
prf_1_category	H	N	M	H	N
prf_2_type	Pruning cut	Rot hole	Rot hole	Rot hole	
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	3, SW, T	7.8, ne, t	9, E, B	8,E,T	
prf_2_description	Small cavity at the bottom of pruning cut goes in about 5cm, entrance 1.5cm wide by 7cm	Hole below dead limb doesn't go anywhere, 2cm pointing downwards, hole above dead limb, extends down by 20cm protected by knuckle on top, dry within the hole	Horizontally faced old knot hole, fist sized cavity behind	Entrance 4cm all round, goes back horizontally 25cm, as wide the opening and narrows towards the back, bird poo inside.	
prf_2_category	L	M	M	M	
prf_3_type	Large hollow	Tear out	Crack/split,Rot hole	Crack/split,Lifted bark	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	0.1, W, T	6m, e, t	5, S, T/B	9,ESE,B	
prf_3_description	Buttress type roots with cavity underneath, 3 large entry points, only goes up 20cm with the slope of the roots fairly open due to entry point but large cavity	Cavity to right of bark plate, 5cm wide 20 in length, goes up by 5cm vertically. Goes in about 10cm behind bark plate	In base of crown there are cracks and a rot hole which goes into the branch up to 20cm across and out on the NW side of branch, when climbed there were cobwebs covering entrance and inside is dusty with rotting wood	Dead limb with peeling bark, very open, underneath the dead wood is a large gap, tilts slightly downwards towards the tree trunk, extends about 20cm, everywhere else around the limb is open and unsuitable.	
prf_3_category	L	L	L	M	
prf_4_type	Rot hole	Rot hole	Branch end cavity/cracks,Lifted bark	Rot hole	
prf_4_height_m_aspect_nesw_trunk_or_branch_tb	5, S, B	5m,e,t	5-12	7,S,B	
prf_4_description	Small knot hole, entrance 8x6cm and goes back about 5cm but fairly damp inside	Rot hole where limb died off, 15x15cm entrance, goes in about 10cm, very wide and open	Lifted bark cracks in lots of areas of dead tree, climbed to safe ones, all low or neg potential	5cm entrance in a circle on the side of the branch, goes back to main trunk horizontally about 40cm long, about 30cm in is a ball of moss, possible tit nest.	
prf_4_category	L	N	L	M	
prf_5_type	Pruning cut			prune cut	

tree_number_on_plan	61	62	63	64	65
prf_5_height_m_aspect_nesw_trunk_or_branch_tb	3, S, T			6,E,T	
prf_5_description	At the side and top of an old pruning cut there is a gap between the deadwood and the healing bark which extends back for 5cm			Pruning cut on the trunk, from a substantial branch, numerous crack/splits downward facing and you cab see right the the back, north facing roll some wood has rotted away, so behind this callus roll it goes in 7cm, currently has a nest in it.	
prf_5_category	M			L	
prf_6_type				Rot hole	
prf_6_height_m_aspect_nesw_trunk_or_branch_tb				7.5,E,B	
prf_6_description				Small rot hole on side of branch, entrance is 7-3cm, inside is a small round 5m bowl, extra 3cm section going south, unlikely but potential for a single bat.	
prf_6_category				L	
tree_category after climb	H	M	M	H	N
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Climbed		Dead tree, safe to climb to all H/M features	More features but all low suitability	Lots if dead wood in the canopy and lifted bark but all superficial and no suitable areas for bats to roost in.

tree_number_on_plan	66	67	68	69	70
tag_number	263	275	262	277	276
prf_1_type	Crack/split	Lifted bark	Large hollow	Tear out	Large hollow
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7,S,B	4.5 se,b	0.1, S, T	5m, ne, b	6,S,B
prf_1_description	45 degree split on dead limb, superficial, not suitable	Flaking bark round dead stum, can see in, doesn't go in far and very fragile. Approx. 1cm in height, goes in approx. 5cm	Basal cavity, large triangular entrance 25cm wide at the bottom, 35cm high, large open chamber inside but roof sloping away downwards and open up south, fence and long grass obstructing entrance.	Tear dropped 15cm tall, 4cm wide, goes in 5-7cm, narrow section at the end goes up but too narrow to accommodate anything. Entrance very open	Two entrances one facing east and one main at the top about 8-6cm long and 7cm wide at the widest, open to water ingress, the first hole (side) is 20cm and connects to the side cavity.
prf_1_category	N	N	N	N	M
prf_2_type	Rot hole	Crack/split	Rot hole		Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	7.5,S,B	4.5m	0.8, S, T		4.5,SE,T
prf_2_description	Small rot hole approx 2cm in a circle, dead end, superficial, not suitable.	Under 1cm entrance, crack extends approx 8cm but only 1cm at top.	Knot hole close to the base of the tree. 7cm diameter round entrance, and extends up trunk for 90cm (whole endoscope length) cannot explore any further. Width of cavity 7cm and stays wide all the way up. It goes down aswell 30cm but does not appear to be connected to basal cavity below.		Rot hole at the base of a pruning cut, entrance 10cm wide, height 1-2cm, extends slightly upwards towards the trunk approx. 20cm
prf_2_category	N	N	H		M
prf_3_type	Rot hole	Rot hole	Tear out		Crack/split
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	8, NW, B	4.5, w,b	6, S, T		4.5,NW,B
prf_3_description	Small knot hole, climbed and does not have sufficient cavity for bats to roost	Dead wood, 1 cavity went in 7cm, entrance approx 2cm x4cm. Dry	Old pruning scar/dead wood with gaps around edge, 8cm long 3cm wide opening to cavity under callus roll on E side of dead wood, the cavity goes in towards the trunk 15cm		Dead limb with numerous cracks underneath and on the north side, extends inwards around 10-20 cm in a few places, potentially for a low number of bats.
prf_3_category	N	L	M		M
prf_4_type		bark plate over dead wood	Crack/split		Rot hole
prf_4_height_m_aspect_nesw_trunk_or_branch_tb		5m,w,b	5, SE, B		7.5,W,B
prf_4_description		Dead timber with bark plate over, lots of holes, open. Can just get endoscope in but very exposed	Dead branch with multiple cracks and openings but all exposed to light/water ingress		Small hole, 2-2cm entrance, extends horizontally 6cm, unlikely
prf_4_category		L	N		L
prf_5_type			Pruning Cut		Rot hole
prf_5_height_m_aspect_nesw_trunk_or_branch_tb			4, NW, T		8,SE,B
prf_5_description			Old pruning scar, cavity under healing bark which extends back at 45degree angle towards trunk for 20cm		Rot hole around dead limb, gap at the bottom underneath dead wood, entrance is about 2-2cm, goes in horizontally about 4cm, very low suitability
prf_5_category			M		L
prf_6_type			Pruning Scar		Rot hole

tree_number_on_plan	66	67	68	69	70
prf_6_height_m_aspect_nesw_trunk_or_branch_tb			3, SW, T		8,W,B
prf_6_description			Old pruning scar with 3cm gap between healing bark and dead wood, extends 10m		Same type as PRF 1, dead branch rotting away but superficial cavity surrounding it, not suitable
prf_6_category			L		N
tree_category after climb	N	L	H	N	M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes				Lots of knot holes with dead wood however on inspection well sealed	

tree_number_on_plan	71	72	73	74	75
tag_number	209	267	265	266	211
prf_1_type	Rot hole	Tear out	Tear out	Rot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7, E, B	6.5,se,b	4.6,s,b	6, SE, B	7,SW,B
prf_1_description	Rot hole 6x4cm where first large lower branch splits into further branches. It goes in 7cm towards trunk	Tear out wound, possible entrance approx. 10cm across. Facing upwards. Very difficult to see due to foliage so put moderate pot	Over road, tear out and flaky bark. Crevice down side of callus roll	Small rot hole with 4cm diameter 30xm long dead wood poking out. There may be a small cavity below and/or above deadwood	Rot hole underneath a snapped of dead limb, approx. 5x2 entrance, could not be inspected see notes
prf_1_category	M	M	L	L	M
prf_2_type	Rot hole	Lifted bark	Rot hole	Light ivy	Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	11, NE, B	4.4,s,b	5,s,b	1-5, T	5.5,SW,B
prf_2_description	4cm opening with cavity extending horizontal at first with a slight incline towards the back, goes 6cm back, room for a bat	Lifted bark round where branch is dying back	2x rot hole with dead timber remaining, also some lifted bark along same branch	Light covering of ivy not thick enough to be a feature in its own right but there is a small chance it is obscuring the view of features on the trunk	Rot hole/callus roll around a snapped off dead limb, difficult to see but there might be gaps at the edges.
prf_2_category	M	L	M	L	M
prf_3_type	Rot hole	Crack/split	Rot hole		Crack/split
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	6, SE, B	6,se,t	5sw,b		6,S,B
prf_3_description	Small downward facing rot hole, climbed and not big enough cavity for a bat	Crevice between dead wood and ivy stem (possibly, very difficult to see)	Rot hole on elbow, some dead timber remaining		0.50cm split along a dead branch, it goes up at a 45 degree angle and although it open at the top there would be some protection from rain/wind from above
prf_3_category	N	L	L		L
prf_4_type	Rot hole	Dense ivy	Large hollow		Dense ivy
prf_4_height_m_aspect_nesw_trunk_or_branch_tb	6, SW, B	8,all,bt	2,e,b		1-4,NA,T
prf_4_description	Small rot hole on branch over hedge, climbed, it does not have big enough cavity for a bat	Dense ivy from base to approx. 8m, on trunk and branches, reduces visibility of features	Hollow at end of long branch with a section of dead wood along with lifted bark at the end of living wood		Some thick ivy stems around the trunk but with a light coverage elsewhere
prf_4_category	N	L	M		L
prf_5_type		Branch end cavity/cracks	Lifted bark		
prf_5_height_m_aspect_nesw_trunk_or_branch_tb		5.5,se,b	3.5,ne,b		
prf_5_description		Crevice round branch end where dead wood is remaining. Appears quite open, flaking bark to north	Lifted bark round dead timber		
prf_5_category		L	L		
tree_category_after_climb	M	M	M	L	M
full_inspection_possible	yes	no	no	no	no
TreeClimb Notes	Climbed - not hanging over road and no overhead cables	Not climbed due to road and pylons	Couldn't climb as by the road	The tree is above a road and there are electricity cables running beside it, unsafe to climb	Tree beside road and power lines

tree_number_on_plan	76	77	78	79	80
tag_number	268	212	214	251	242
prf_1_type	Rot hole	Tear out	Crack/split	Tear out	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	10, s b	8, E, B	5,SE,T	10, SW, B	5.5,WNW,T
prf_1_description	Rot hole, looks well sealed	Remnants of old limb, deadwood and healing bark, may have a small cavity towards the bottom	Dead wood with lots of crevices about 1-2cm wide ranging between 10-40cm, these are very narrow.	Dead branch/tear out with gaps around the sides, when inspected the cavity was no more than a couple of cm too exposed	Small rot hole, 4x4cm and extended horizontally 5cm.
prf_1_category	L	L	L	N	L
prf_2_type	Dense ivy	Light ivy	Large hollow	Tear out	Crack/split
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	8, all,t	2-7, T	0.70,SE,T	9, E, B	5,NE,B
prf_2_description	Dense ivy from base to 8m all round trunk. Possibly hiding features rather than feature itself	Light covering of ivy not thick enough to be a feature in it's own right but small possibility that it may be covering a feature	Large hollow at the base of the tree, a few tunnels going up between 10-25cm.	Large tear out scar, with 25cm by 40cm entrance, does not extend upwards, downwards there is nest material, no real shelter provided for bats	Numerous cracks/splits, the most suitable section is 1-2cm at the opening, approximately 30cm long going across, mostly open but dry area underneath in hollow
prf_2_category	L	L	M	N	L
prf_3_type	Lifted bark	Lifted bark		Crack/split	Rot hole
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	8 se b	10, NW, B		5, E, B	8,NE,B
prf_3_description	Lifting bark	Small rot which does not appear to go anywhere but the bark above looks flaked, might be a cavity		Crack in dead branch, doesn't extend much beyond extend of opening which is not facing directly upwards but would let some slight/weather in	4x4cm entrance, goes in 6cm, unlikely, shallow
prf_3_category	L	L		L	L
prf_4_type				Rot hole	Crack/split, Tear out
prf_4_height_m_aspect_nesw_trunk_or_branch_tb				5,E,B	6,SE,B
prf_4_description				Old tear out with rot hole extending 60cm into branch, dead wood lying above entrance sheltering it, entrance 2-3cm by 4cm across. Cavity goes downwards and towards he back is wet and dirty	Old tear out with a gap 4x1.5cm at entrance under callus roll/bark this goes in following under the healing bark through until it come out again at the dead wood about 25cm up. Sheltered from above
prf_4_category				M	M
prf_5_type				Large hollow	
prf_5_height_m_aspect_nesw_trunk_or_branch_tb				4, E, T	
prf_5_description				Hollow in the base of crown, large open entry point 25cm by 10cm. Downwards cavity bowl shaped, extending to N and another entry point at dead branch. Towards 5he upward stem above and to south there is dead wood, behind this to W there is a long upward reaching cavity about 50cm long, very good shelter, good none cluttered entry points. No bats on inspection	
prf_5_category				H	

tree_number_on_plan	76	77	78	79	80
prf_6_type				Large hollow	
prf_6_height_m_aspect_nesw_trunk_or_branch_tb				1-3, E, T	
prf_6_description				Really excellent group of cavities centred around a large scar in a triangle from the bottom of the trunk. Heartwood is visible here and to the sides/callus roll there are openings which extend far back (70cm+) into stem. No bats at time of inspection but good entry points/shelter for multiple bats.	
prf_6_category				H	
tree_category after climb	L	L	N	H	M
full_inspection_possible	no	no	yes	yes	yes
TreeClimb Notes	Ivy up to approx 8 m. Not climbed due to pylons and road	Tree is above the road and there are telephone cables running to the side, no safe to climb			Other areas of deadwood but not suitable for bats

tree_number_on_plan	81	82	83	84	85
tag_number	250	None	248	247	None
prf_1_type	Crack/split, Lifted bark		Rot hole	Rot hole, pruning cut with callus roll	
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7,E,B		1.5,SE,B	4,NW,T	
prf_1_description	Dead limb with lifted bark, light spill all the way through and the feature is open on top, not suitable.		Small 10cm rot hole, 2.5cm width, superficial, not suitable	Pruning cut with callus roll, superficial only goes in 5cm and is open all the way across	
prf_1_category	N		N	N	
prf_2_type	pruning cut			Crack/split	
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	2.5,W,T			6-10,NW,T	
prf_2_description	Pruning cut, to the left there is a 10cm slit at the callus roll edge, bat confirmed at the entrance to the feature. Not sure of how far the feature goes backwards as to not disturb the bat too much.			Long linear feature with lots of slits, and cracks, the wood has not rotted away sufficiently enough to create suitable cavities	
prf_2_category	Roost			N	
prf_3_type	Rot hole,pruning cut two rot holes near the base				
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	2.5,ESE,T				
prf_3_description	Pruning cut. Two little rot holes, first one, 3cm long 1.5 wide at the entrance but only extends 5cm, very damp, the second one is superficial and doesn't go anywhere.				
prf_3_category	N				
tree_category_after_climb	Roost		N	N	
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	Single pipistrelle found, photos taken on endoscope.		A few other superficial potholes all in spectacle from the ground. Not suitable		

tree_number_on_plan	86	87	88	89	90
tag_number	249	241	260	259	246
prf_1_type	Crack/split	Rot hole	N/a	Rot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7, S, B	5.5,SE,	N/a	4.5, SE, T	7, E, B
prf_1_description	Crack in wood on fresh pruning cut, superficial, no sheltered cavity	S rot hole approximately 5x5cm, superficial, unsuitable	Mature oak but with no potential features for roosting bats, looks as if some recent pruning has occurred on ends of branches	Knot hole with small 7cm cavity that narrows horizontally, not large enough/sheltered enough to support a bat roost	6x4cm entrance, the hollow behind is 25cm long and round with bird material inside, entrance exposed and would let elements/light in
prf_1_category	N	N	N	N	L
prf_2_type	Lifted bark			Pruning Scar	Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	6, NW, B			4, NW, T	6, E, B
prf_2_description	Lifted bark on lower dead branch, it is open at both ends but sheltered in between, 30cm long and 5cm wide.			Upward facing pruning scar with gaps between bark edge and heartwood, cavity is exposed/ would get wet/ too much light	Knot hole with 4cm hole at the bottom of dead wood, very exposed not providing good shelter
prf_2_category	M			N	N
prf_3_type					Rot hole
prf_3_height_m_aspect_nesw_trunk_or_branch_tb					6, W, B
prf_3_description					Knot hole with 2cm cavity behind, not big enough to provide shelter
prf_3_category					N
prf_4_type					Rot hole
prf_4_height_m_aspect_nesw_trunk_or_branch_tb					5.5, W, B
prf_4_description					Small knot hole, slightly upward facing. 4cm cavity
prf_4_category					N
tree_category_after_climb	M	L	N	N	L
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes		Lots of dead wood and lifted bark but checked thoroughly and no substantial areas that would be protection from wind or rain.	Not climbed, but checked from ground and there are no features.		Climbed

tree_number_on_plan	91	92	93	94	95
tag_number	258	None	None	257	245
prf_1_type	Rot hole			Rot hole	Crack/split
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	6, NE, B			5, W, B	6, E, B
prf_1_description	Knot hole on branch which is bowl shaped inside, only going back to 7cm, it is open and exposed would be too light for bats			Knot hole with small piece of dead wood protruding out, from the ground there is a dark gap to the side which looked like it might go in, when climbed it was found to only reach back 1 or 2 cm	Dead branch end with split with extends 25cm into branch and is sheltered from above
prf_1_category	N			N	M
prf_2_type	Lifted bark			Rot hole	
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	6, NE, B			5, W, B	
prf_2_description	Next to the previously described knot/rot hole there is an area of lifted bark the cavity behind stretched upwards for 25cm and is sheltered with no gaps in bark either side. The cavity also extends downwards but this part would get wet and is narrower			Knot hole with another small dead branch protruding from it with a gap this time above. The cavity does not extend back passed a cm or 2	
prf_2_category	M			N	
prf_3_type	Branch end cavity/cracks			Crack/split	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	5-10, B			4, N, B	
prf_3_description	There are multiple dead branches on the tree with cracks/splits/lifted bark, all considered to have Mod potential or above were climbed to/checked with endoscope, most are superficial, and others have cavities which are exposed			Dead branch in middle of crown base, it has cracks and splits but they are exposed and any cavities are open at the top	
prf_3_category	L			N	
prf_4_type	Tear out				
prf_4_height_m_aspect_nesw_trunk_or_branch_tb	4, SW, B				
prf_4_description	Old tear out, between dead wood and bark/callus roll there is a 5cm gap following around he old branch, the healing bark is creating a shelters cavity about 20cm around				
prf_4_category	M				
tree_category_after_climb	M			N	M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes					Climbed

tree_number_on_plan	96	97	98	99	100
tag_number	None	244	252	256	255
prf_1_type		Rot hole	Rot hole	Branch end cavity/cracks	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb		5.5,WNW,T	4.5, W, B	5, E, B	6, NE, B
prf_1_description		Knot hole with an opening on the left hand side which is a slit about 10cm long, 2cm wide, goes in about 10cm.	Old branch, 30 cm long stump, not much dead wood left in protruding part, bark left around the edge, cavity inside but lots of gaps, not sheltered. At branch union the heartwood is still intact and doesn't extend into tree stem	Dead branch. Above dead wood and underneath bark above there is a cavity 3cm by 7cm opening and it extends out towards the end of the branch 10cm and back towards the stem 5cm	Upward facing knothole which wood can be seen from the ground in the upward part, unlikely to be a cavity downwards/would get wet and very open 10x5cm entrance
prf_1_category		M	N	M	L
prf_2_type		Rot hole		Tear out	Branch end cavity/cracks
prf_2_height_m_aspect_nesw_trunk_or_branch_tb		6.5,W,B		4, N, B	8, NE, B
prf_2_description		Small rot hole, superficial, not suitable		Callus roll around old tear out there is a gap to the E side behind the callus roll which is sheltered	Dead branch with some loose bark/upward extending cracks
prf_2_category		N		M	L
prf_3_type		Rot hole		Rot hole	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		5.5,N,B		3.5, N, T	
prf_3_description		Pruning cut with rot hole running through it. Entrance 3x3cm, extends approximately 8cm inwards but open		Knot hole with a 3x3 entrance to cavity extending horizontally back 10cm	
prf_3_category		L		M	
prf_4_type				Crack/split	
prf_4_height_m_aspect_nesw_trunk_or_branch_tb				6, SE, B	
prf_4_description				Crack in the heartwood of a recent pruning cut, 25cm across and 1.5cm wide, depth at it's most is 4cm	
prf_4_category				L	
prf_5_type				Tear out	
prf_5_height_m_aspect_nesw_trunk_or_branch_tb				6.5, NE, B	
prf_5_description				Dead branch appearing to have a gap at old branch union under bark/around edge of dead wood but it is too narrow for endoscope/bats	
prf_5_category				N	
tree_category_after_climb		M	N	M	L
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes		Some buttress hole, better for small mammals, doesn't extend upwards.	climbed		Not climbed, deemed acceptable to inspect only from ground as features have low potential at best

tree_number_on_plan	101	102	103	104	105
tag_number	254	253	243	300	299
prf_1_type	Branch end cavity/cracks	Tear out	Large hollow	Rot hole	Callus roll
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	7, NE, B	8, NE, B	4,NEE,T	0.8m, E, T	3-4, NE, T
prf_1_description	Dead branch with some lifting bark and a crack, crack is too narrow and bark to cracked and is exposed from the side	Old tear out, where bark is healing there is a 5cm deep cavity following the line around of the old branch	10x10cm opening, extends upwards 20cm but is quite open.	Rot hole close to the ground, hole is 10cm upwards, wide and exposed, more suited to birds, mossy birds next inside	Long 70cm callus roll with bark plate over top section, need ladder to check this, tree is dead can't be climbed and may knock bark
prf_1_category	N	L	M	L	M
prf_2_type	Lifted bark	Tear out	Crack/split	Rot hole	Callus roll
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	4, SE, B	7, S, B	4,NW,T	4m, E, B	1-2, E, T
prf_2_description	At base of large branch, large 60cm long plate and another 40cm plate which can be entered from below creating a sheltered cavity underneath	Old tear out/branch stub which has a cavity at the base near to the bark/callus roll, 3cm wide entrance following edge of old branch, 7cm long and it goes back about 10cm but slightly upward facing	Pruning cut with splits running down with some dead wood and lifting bark. The splits all run downwards and are open at the top and would fill with water on poor nights	Small knot hole, climbed tree and there is wood in the hole does not go anywhere	Checked from ground with endoscope, goes in 10cm at the top, very narrow
prf_2_category	M	L	L	N	L
prf_3_type		Tear out	Rot hole	Rot hole	
prf_3_height_m_aspect_nesw_trunk_or_branch_tb		7, E,	2.5,SE,T	7m, E, B	
prf_3_description		Old tear out/dead branch with several entrances some connecting to the top/light coming in, but with one cavity which is closed at the top extending up 25cm, sheltered.	2.5x2.5cm, rot hole that extends horizontally 10cm, enough for a single or low number of bats.	Upward facing narrow knot hole, on west pointing branch, climbed and doesn't go anywhere	
prf_3_category		M	M	N	
prf_4_type		Pruning Scar	Rot hole, pruning cut with dead wood		
prf_4_height_m_aspect_nesw_trunk_or_branch_tb		4, W, T	1.5,N,T		
prf_4_description		Old pruning cut with heart wood rotting away, cavity is large and open, not suitable for bats	Pruning cut with some dead wood, but its fully open to the elements with no suitable cavity.		
prf_4_category		N	N		
tree_category after climb	M	N	M	L	M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes			Some Hollows around the buttress but they are at ground level and don't extend upwards, good for small mammals	Endoscopes bottom hole from ground	

tree_number_on_plan	106	107	108	109	110
tag_number	298	297	296	295	294
prf_1_type	Crack/split	Lifted bark	Tear out	Knot hole	Rot hole
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	5, SE, B	0-8, E, T	1.7, NE, T	6, S, B	0.5, S, T
prf_1_description	Large split in lower branch, branch pointing SW, climbed and there is no cavity	Many large bark plates, not climbed due to dead tree and possibility of knocking bark off. Access to bottom difficult due to ditch, endoscope accessible areas checked, looks to be dark/dry areas	Hole where branch has come way, extends 15cm up the tree, sheltered	Upward facing knot hole, climbed tree, there is no cavity-superficial	Rot hole where stem splits in two, entrance 15cm long and 3cm across, endoscoped from ground 10cm extension upwards
prf_1_category	N	M	M	N	M
prf_2_type			Wood pecker hole		Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb			1.5		0.4, E, T
prf_2_description			Underside of leaning tree, extends upwards 15cm, not connecting to other hole/tear out		Another rot hole where stem splits in two, wasp nest, not endoscoped due to wasps
prf_2_category			M		L
prf_3_type			Crack/split		Rot hole
prf_3_height_m_aspect_nesw_trunk_or_branch_tb			1		4, E, B
prf_3_description			Very small narrow slit feature on underside of tree, extending 10cm upwards into trunk		Cavity with cluttered entrance
prf_3_category			M		M
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes					Higher feature not checked due to wasps

tree_number_on_plan	111	112	113	114	115
tag_number	293	292	291	290	300
prf_1_type	Large hollow	Rot hole	Tear out	Rot hole	Crack/split
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	0.1, SW, T	6, W, B	6,NE, T	8, NW, B	2.5, w, b
prf_1_description	Cavity at bottom of trunk, wide 20x20cm	Rot hole on under side of leaning tree/top branch, circular opening 4cm diameter	Callus roll/old tear out, climbed and found to have cavity extending upwards at least 25cm		Crack in trunk , goes in about 8cm, 50cm long, 10cm wide, excluding up
prf_1_category	M	L	M	L	L
prf_2_type	Rot hole	Crack/split			Lifted bark
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	8, NW, T	0.7, SW, T			6m, w, t
prf_2_description	Rot hole in narrow section of trunk	Split in base of tree due to lean			Lifted bark providing small gap, 10-15cm. Old stump above which is open
prf_2_category	N	N			L
tree_category after climb	M	L	M	L	L
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes				Hole is very open at the entrance and extends no more than 8cm. Unlikely.	When inspected, low potential

tree_number_on_plan	116	117	118	119	120
tag_number	298	299	297	296	295
prf_1_type	Crack/split	small cavity	Tear out	Large hollow	Tear out
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	12m, n, t	2.2m, e, t	8m, sw, t	0m, ne, t	3m, s, t
prf_1_description	Long split, 60-80cm long, 10cm deep at top. Wet lots of slugs	Small cavity where previous limb split away, 3cm wide, 10cm + up	Cavity at top of tear out. 15cm deep entrance 2-3cm. No signs. Wood louse present	Large opening at bottom, 39cm across, up 30cm	Tree dead and partially fallen, feature not accessible, poss gap at the top
prf_1_category	M	M	M	L	M
prf_2_type			Lifted bark	Tear out	
prf_2_height_m_aspect_nesw_trunk_or_branch_tb			6m, w, b	2,s, t	
prf_2_description			Small holes as though woodpecker started making holes, various sizes only 1 where can get endoscope in, approx. 5cm deep, 2 cm diameter,	Snap out	
prf_2_category			L	N	
tree_category after climb	L	M	L	L	L
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes	3 stemmed sycamore	1 feature			

tree_number_on_plan	121	122	123	124	125
tag_number	289	290	291	292	293
prf_1_type	Tear out	Rot hole	Crack/split	Rot hole	Large hollow
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	3m, nw,t	8m, s, t	8, nw t	8m, se, t	3m, s, t
prf_1_description	Tear out, 30cm long - doesn't go in	2x3cm opening, in about 10cm, full of woodlice	Crack, doesn't go in anywhere	Knot hole with chewed bark round edge. Not accessible to climb as dead. Approx. 5 cm diameter	Cavity, not accessible to climb, possibly 8cm wide
prf_1_category	N	M	N	M	L
prf_2_type	Tear out	Large hollow	Crack/split	Large hollow, cavity	Large hollow
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	7m, nw, t	0, s, t	7m, nw, t	0.6m, nw,t	0, e, t
prf_2_description	Open tear out, approx. 49cm long doesn't go in	Large basal cavity, in about 15cm. Cavity approx. 30cm	Crack, max 2cm deep	Basal Cavity , goes down approx. 10cm	Cavity at base, goes up about 8cm
prf_2_category	N	M	L	L	L
prf_3_type	Rot hole				
prf_3_height_m_aspect_nesw_trunk_or_branch_tb	6m, w, t				
prf_3_description	Knot hole				
prf_3_category	N				
tree_category_after_climb	N	L	N	L	L
full_inspection_possible	yes	yes	yes	yes	yes
TreeClimb Notes					

tree_number_on_plan	126	127	128	129	130	131
tag_number	294	288	286	287	285	284
prf_1_type	Large hollow	Large hollow	Tear out	Crack/split	Tear out	Tear out
prf_1_height_m_aspect_nesw_trunk_or_branch_tb	0m, e, t	0,n, t	4m, s, t	8, ne, b	14m,ne, b	9m, s, t
prf_1_description	Basal cavity, approx. 10cm up	Large cavity, 20cm across and 20cm up	20cm long split, goes in for approx. 30 cm then another crack/entrance and goes in another 10cm. Nice and dry	Crack approx. 8cm long x 2 cm wide, goes on a couple cm, potential for occasional roost but would be visible	Large snap out on elbow but entrance very small, approx. 1cm max, went in approx. 5cm but too small	Tear, approx. 25cm long. Very open closes up within a few cm
prf_1_category	L	L	H	L	N	L
prf_2_type	Crack/split		basal cavity			Rot hole
prf_2_height_m_aspect_nesw_trunk_or_branch_tb	4m e, t		0m, s, t			8m, w, t
prf_2_description	Large split up one of main stems, approx. 2m, quite open		Basal cavity, only goes down, opens up into cavity			Small rot hole, doesn't go in
prf_2_category	M		L			N
prf_3_type			Rot hole			Rot hole
prf_3_height_m_aspect_nesw_trunk_or_branch_tb			N 6 t			5m, ne, t
prf_3_description			Small hole on North side, approx. 3cm			20cm wide x30cm potential but wet. Went in about 40cm
prf_3_category			L			M
tree_category after climb	L	L	M	L	N	M
full_inspection_possible	yes	yes	yes	yes	yes	yes
TreeClimb Notes			Right next to track by fence			

APPENDIX 3

Tree Survey Results: Dusk Emergence and Dawn Re-Entry Survey Results

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
4	226	303352 379872	14/04/2021	28/07/2021	Sycamore	H	yes	BT3	02/08/2021	Charlie Kempson	21:06:00	20:52:00	22:36:00	Wind 0, rain 0, cloud 0/8, temp start 14	Noctule activity, foraging and crossing field north to south.	N	H		
									10/09/2021	Hannah McBlain	06:37:00	05:07:00	06:27:00	Wind 0, rain 0 until 0601 then heavy showers, cloud 8/8, temp start 17 end 17	No clear roost entries but up to two pipistrelles circling at tree 05:14 - 05:48 (common and soprano pipistrelles detected). Rain curtailed survey ten minutes early (no bat calls for 15 minutes prior to that).	N			10.09.21 up to two pipistrelles circling at tree 05:14 - 05:48 (common and soprano pipistrelles detected).
6	225	303331 379793	14/04/2021	28/07/2021	Oak	M	yes	BT4	02/08/2021	Amy Gill	21:08:00	20:53:00	22:38:00	Wind 0, rain 0, cloud 1/8, Temp start 14 end 7	Noctules flying high southwards, suspected to have come from small woodland.	N	M		
7	223	302717 379512	14/04/2021	28/07/2021	Sycamore	M	no	BT5, BT6	02/08/2021	Hannah McBlain	21:08:00	20:53:00	22:38:00	Wind 1, rain 0, cloud 1/8, temp start 14 end 12	Pipistrelles and noctules recorded - foraging/flying over.	N	M		
									07/09/2021	Hannah McBlain	06:24:00	04:54:00	06:24:00	Wind 1, rain 0, cloud 1/8, temp start 17 end 15	None roosting.	N			
8	222	302737 379480	14/04/2021	28/07/2021	Sycamore	M	no	BT5, BT6	02/08/2021	Hannah McBlain	21:08:00	20:53:00	22:38:00	Wind 1, rain 0, cloud 1/8, temp start 14 end 12	Pipistrelles and noctules recorded - foraging/flying over	N	M		
									07/09/2021	Hannah McBlain	06:24:00	04:54:00	06:24:00	Wind 1, rain 0, cloud 1/8, temp start 17 end 15	None roosting.	N	N		
9	218	302620 379342	14/04/2021	28/07/2021	Oak	L	yes	BT7, BT8	28/07/2021	Hannah McBlain	21:16:00	21:01:00	22:46:00	Wind 5 N, rain heavy, cloud 8/8, temp start 14 end 13	Rain throughout, most activity recorded close to T9.	N	L		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
									05/08/2021	Hannah McBlain	05:36:00	04:06:00	05:36:00	Wind 2 W, rain 0, cloud 6/8, temp start 13 end 12	Pipistrelle seen flying by tree 9 until disappearing into tree canopy. Possible (unlikely) roost.	N	L		
10	215	302634 379336	14/04/2021	28/07/2021	Oak	L	yes	BT7, BT8	28/07/2021	Hannah McBlain	21:16:00	21:01:00	22:46:00	Wind 5 N, rain heavy, cloud 8/8, temp start 14 end 13	Rain throughout.	N	L		
								BT7, BT8	05/08/2021	Hannah McBlain	05:36:00	04:06:00	05:36:00	Wind 2 W, rain 0, cloud 6/8, temp start 13 end 12		N			
11	216	302635 379324	14/04/2021	28/07/2021	Sycamore	N	yes	BT7, BT8	28/07/2021	Hannah McBlain	21:16:00	21:01:00	22:46:00	Wind 5 N, rain heavy, cloud 8/8, temp start 14 end 13	Rain throughout.	N	N		
									05/08/2021	Hannah McBlain	05:36:00	04:06:00	05:36:00	Wind 2 W, rain 0, cloud 6/8, temp start 13 end 12	View of tree limited.	N	N		
12	219	302656 379315	14/04/2021	28/07/2021	Oak	M	yes	BT7, BT8	28/07/2021	Hannah McBlain	21:16:00	21:01:00	22:46:00	Wind 5 N, rain heavy, cloud 8/8, temp start 14 end 13	Rain throughout.	N	M		
									05/08/2021	Hannah McBlain	05:36:00	04:06:00	05:36:00	Wind 2 W, rain 0, cloud 6/8, temp start 13 end 12	View of tree limited.	N			
13	220	302772 379247	14/04/2021	28/07/2021	Oak	M	yes	BT9	03/08/2021	Amy Wainwright	05:36:00	03:36:00	05:36:00	Wind 3, rain 0, cloud 2/8, temp start 12 end 8		N	M		
14	221	302808 379241	14/04/2021	28/07/2021	Oak	L	yes	BT9	03/08/2021	Hannah McBlain	05:36:00	03:36:00	05:36:00	Wind 3, rain 0, cloud 2/8, temp start 12 end 9	No observations.	N	L		
16	228	301484 376609	15/04/2021	27/07/2021	Oak	M	yes	BT62	03/08/2021	Charlie Kempson	05:33:00	03:33:00	05:33:00	Wind 3 W, rain 0, cloud 7/8, temp start 11 end 7	Survey feels colder than temperature, damp air/cool breeze.	N	M		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
17	230	301432 376112	29/04/2021	27/07/2021	Oak	H	yes	BT11	03/08/2021	Amy Gill	21:06:00	20:51:00	22:36:00	Wind 0, rain 0, cloud 5/8, temp start 15 end 10	Noctules foraging overhead and around T17 throughout.	N	H		
18	229	301453 376054	29/04/2021	27/07/2021	Oak	L	yes	BT11	03/08/2021	Charlie Kempson	21:06:00	20:51:00	22:36:00	Wind 0, rain 0, cloud 5/8, temp start 15 end 10	Noctules foraging/flying overhead all survey.	N	L		
19	232	301690 375257	29/04/2021	27/07/2021	Oak	M	yes	BT12	22/07/2021	Amy Gill	21:26:00	21:11:00	22:56:00	Wind 0, rain 0, cloud 3/8, temp start 19 end 16	Surveyor location moved due to cattle SJ01685 75163, noctules heard not seen, one pipistrelle pass.	N	M		
									04/08/2021	Hannah McBlain	21:03:00	20:48:00	22:33:00	Wind 2 E, rain 0, cloud 4/8, temp start 19 end 16	No bat observations, two pipistrelle on detector, three hares and fox below trees.	N			
20	234	301746 375255	29/04/2021	27/07/2021	Oak	N	yes	BT12	22/07/2021	Amy Gill	21:26:00	21:11:00	22:56:00	Wind 0, rain 0, cloud 3/8, temp start 19 end 16	Surveyor location moved due to cattle SJ01685 75163, noctules heard not seen, one pipistrelle pass.	N	N		
21	235	301705 375251	29/04/2021	27/07/2021	Oak	Roost	no	BT12	22/07/2021	Amy Gill	21:26:00	21:11:00	22:56:00	Wind 0, rain 0, cloud 3/8, temp start 19 end 16	Surveyor location moved due to cattle SJ01685 75163, noctules heard not seen, one pipistrelle pass.	N	Roost	27.07.21 one soprano pipistrelle (species confirmed via DNA test) observed within PRF 1. No roosting recorded during dusk surveys on 22.07.21, 04.08.21 or 07.09.21. Considered to be soprano pipistrelle dayroost.	07.09.21 Up to four common pipistrelle bats foraging (20:43 - 21:01).
									04/08/2021	Hannah McBlain	21:03:00	20:48:00	22:33:00	Wind 2 E, rain 0, cloud 4/8, temp start 19 end 16	No bat observations, two pipistrelles on detector, three hares and fox below trees	N			
									07/09/2021	Hannah McBlain	19:50:00	19:35:00	21:20:00	Wind 1, rain 0, cloud 0/8, temp start 18 end 17	None roosting. Lots of foraging activity at T21 and T20. Up to four common pipistrelle bats foraging (20:43 - 21:01)	N			

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
22	240	301413 375241	29/04/2021	27/07/2021	Oak	H	yes	BT16	03/08/2021	Hannah McBlain	21:06:00	20:51:00	22:36:00	Wind 0, rain 0, cloud 4/8, temp start 16 end 13	No observations.	N	H		
									08/09/2021	Hannah McBlain	06:28:00	04:58:00	06:28:00	Wind 2, rain 0, cloud 1/8, temp start 15 end 14	No observations, few calls.	N	H		
23	239	301436 375223	29/04/2021	27/07/2021	Oak	H	yes	BT16	03/08/2021	Liz Probert	21:04:00	20:44:00	22:34:00	Wind 0, rain 0, cloud 4/8, temp start 16 end 13	Several pipistrelle passes heard not seen.	N	H		
									08/09/2021	Hannah McBlain	06:28:00	04:58:00	06:28:00	Wind 2, rain 0, cloud 1/8, temp start 15 end 14	No observations, few calls.	N			
24	231	301809 375220	27/07/2021	27/07/2021	Oak	N	yes	BT13	22/07/2021	Charlie Kempson	21:27:00	21:12:00	22:57:00	Wind 1, rain 0, cloud 2/8, temp 20	Pipistrelle and Noctule foraging on far side of field.	N	N		
25	233	301613 375148	29/04/2021	27/07/2021	Oak	M	yes	BT14, BT15	23/07/2021	Amy Gill	05:16:00	03:36:00	05:28:00	Wind 1 NW, rain 0, cloud 2/8, temp start 13 end 16	None roosting at T25.	N	M		
26	236	301610 375141	29/04/2021	27/07/2021	Oak	L	yes	BT14, BT15	23/07/2021	Amy Gill	05:16:00	03:36:00	05:28:00	Wind 1 NW, rain 0, cloud 2/8, temp start 13 end 17	None roosting at T26.	N	L		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
27	238	301542 375133	29/04/2021	27/07/2021	Oak	L	yes	BT14, BT15	23/07/2021	Amy Gill	05:16:00	03:36:00	05:28:00	Wind 1 NW, rain 0, cloud 2/8, temp start 13 end 18	Charlie (BT15) notes suspected pipistrelle roost, non-echolocating bats observed at 04:30 flying towards feature 2.5-3m up north side of tree, did not see entry to feature but at least two bats flying towards same spot on tree then disappearing . Amy (at BT14) notes one bat seen near tree 27 (05:07).	Y	Roost	23.07.21 at least two bats observed at 46 minutes prior to sunrise, presumed to enter PRF 5. Not echolocating, but assumed to be soprano pipistrelle based on size/flight characteristics observed and that other bats recorded during the survey were of this species. 27.07.21 no evidence of roosting bats during PRF inspection. Assessed as soprano pipistrelle dayroost. 04.08.21 no evidence of roosting.	
									04/08/2021	Amy Wainwright	21:03:00	20:48:00	22:33:00	Wind 2 E, rain 0, cloud 4/8, temp start 19 end 16	Noctule seen flying around tree 21:18, but not seen emerging.	N			
28	237	301602 375131	29/04/2021	27/07/2021	Oak	L	yes	BT14, BT15	23/07/2021	Amy Gill	05:16:00	03:36:00	05:28:00	Wind 1 NW, rain 0, cloud 2/8, temp start 13 end 19	None roosting at T28.	N	L		
29	281	301347 374926	20/07/2021	20/07/2021	Oak	N		BT17, BT18	23/07/2021	Liz Probert	05:16:00	03:46:00	05:30:00	Wind 1, rain 0, cloud 3/8, temp start 15 end 16	Four noctules commuting west to east from 4:15 to 4:20.	N	N		23.07.21 4 noctules commuting west to east from 4:15 to 4:20
30	282	301343 374901	20/07/2021	20/07/2021	Oak	N		BT17, BT18	23/07/2021	Liz Probert	05:16:00	03:46:00	05:30:00	Wind 1, rain 0, cloud 3/8, temp start 15 end 16	Four noctules commuting west to east from 4:15 to 4:20.	N	N		As above

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
31	284	301328 374866	20/07/2021	20/07/2021	Oak	N		BT17, BT18	23/07/2021	Liz Probert	05:16:00	03:46:00	05:30:00	Wind 1, rain 0, cloud 3/8, temp start 15 end 16	Four noctules commuting west to east from 4:15 to 4:20.	N	N		As above
32	283	301316 374861	20/07/2021	20/07/2021	Oak	M		BT17, BT18	23/07/2021	Liz Probert	05:16:00	03:46:00	05:30:00	Wind 1, rain 0, cloud 3/8, temp start 15 end 16	Four noctules commuting west to east from 4:15 to 4:20.	N	M		As above
33	289	301348 374776	20/07/2021	20/07/2021	Ash	M		BT19	16/07/2021	Rachel Seddon	05:05:00	03:05:00	05:05:00	Wind ?, rain 0, cloud?, temp 12	No roosts.	N	M		
34	288	301378 374744	20/07/2021	20/07/2021	Oak	N		BT20, BT21	16/07/2021	Hannah McBlain	05:05:00	03:05:00	05:05:00	Wind 2 N, rain 0, cloud 0/8, temp start 12 end 9	Quiet overall.	N	N		
35	285	301332 374738	11/09/2020	20/07/2021	Oak	M		BT19, BT20	16/07/2021	Rachel Seddon	05:05:00	03:05:00	05:05:00	Wind ?, rain 0, cloud?, temp 12	04:08 -04:13 pipistrelle at top of tree canopy. At 04:21 1 bat (49.9khz) flew in from southwest.	N	M		
36	287	301409 374729	11/09/2020	20/07/2021	Oak	N		BT21	16/07/2021	Hannah McBlain	05:05:00	03:05:00	05:05:00	Wind 2 N, rain 0, cloud 0/8, temp start 12 end 9	Quiet overall.	N	N		
37	286	301424 374712	11/09/2020	20/07/2021	Oak	L		BT20, BT21	16/07/2021	Hannah McBlain	05:05:00	03:05:00	05:05:00	Wind 2 N, rain 0, cloud 0/8, temp start 12 end 9	Quiet overall, pipistrelles fly over tree at 03:39 and 03:44.	N	L		
38	279	301308 374592	11/09/2020	20/07/2021	Oak	N		BT22	16/07/2021	Charlie Kempson	05:05:00	03:05:00	05:05:00	Wind 2 W, rain drizzle/mist, cloud 7/8, temp 12	No activity	N	N		
39	267	300941 374562	16/04/2021	21/07/2021	Oak	M	yes	BT27	13/07/2021	Jess Colebrook	21:36:00	21:15:00	23:06:00	Wind 1 W, rain 0, Cloud 1/8, temp start 20	21:52&21:57 pipistrelle seen not heard flying west to east from wood towards and past tree, last part of survey soprano pipistrelle foraging near wood edge to east of tree surveyed.	N	M		

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40	278	301227 374508	11/09/2020	20/07/2021	Oak	N		BT23, BT24	15/07/2021	Charlie Kempson	21:33:00	21:18:00	23:03:00	Wind 1 W, rain 0, cloud 0/8, temp start 18 end 10	Bats above trees and soprano pipistrelles foraging.	N	N		
41	277	301131 374506	16/04/2021	20/07/2021	Oak	L		BT25, BT26	13/07/2021	Charlie Kempson	21:37:00	21:22:00	23:07:00	Wind 0, rain 0, cloud 1/8, temp start 16 end 13	Pipistrelle bat foraging behind surveyor.	N	L		
42	280	301245 374496	16/04/2021	20/07/2021	Oak	N		BT23, BT24	15/07/2021	Charlie Kempson	21:33:00	21:18:00	23:03:00	Wind 1 W, rain 0, cloud 0/8, temp start 18 end 10	Foraging soprano pipistrelle, and bats commuting above trees. No suspected roosts.	N	N		
43	207	301074 374494	11/09/2020	30/07/2021	Oak	N	yes	BT25, BT26	13/07/2021	Charlie Kempson	21:37:00	21:22:00	23:07:00	Wind 0, rain 0, cloud 1/8, temp start 16 end 13	Pipistrelle and big bat sp. picked up by detector. Pipistrelle foraging behind surveyor at BT25.	N	N		
43	207	301074 374494	11/09/2020	30/07/2021	Oak	N	yes	BT26	29/07/2021	Amy Wainwright	05:26:00	03:26:00	05:26:00	Wind 2 N, rain 0, cloud 4/8, temp start 12 end 11	04:46 noctule flew overhead.	N	N		
44	276	301085 374490	16/04/2021	20/07/2021	Oak	N		BT25, BT26	13/07/2021	Charlie Kempson	21:37:00	21:22:00	23:07:00	Wind 0, rain 0, cloud 1/8, temp start 16 end 13	Pipistrelle and big bat sp. picked up by detector.	N	N		
45	275	301115 374477	16/04/2021	21/07/2021	Oak	N		BT25, BT26	13/07/2021	Charlie Kempson	21:37:00	21:22:00	23:07:00	Wind 0, rain 0, cloud 1/8, temp start 16 end 13	Pipistrelle and big bat sp. picked up by detector.	N	N		
46	268	300941 374422	16/04/2021	21/07/2021	Oak	N	yes	BT31, BT32	14/07/2021	Hannah McBlain	05:03:00	03:03:00	05:03:00	Wind 1 W, rain 0, cloud 0/8, temp start 11 end 9	Big bat and pipistrelle activity recorded on detectors, one bat seen foraging above hedgerow.	N	N		
47	274	301094 374414	16/04/2021	21/07/2021	Oak	L		BT28	13/07/2021	Hannah McBlain	21:36:00	21:36:00	23:06:00	Wind 2 W, rain 0, cloud 0/8, temp start 14 end 13	Surveyor location changed due to cows, now in opposite field near to BT29. 22:15 big bat calls recorded, 22:25 bat seen in open cow field.	N	L		

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48	269	300972 374413	16/04/2021	21/07/2021	Oak	N	yes	BT31, BT32	14/07/2021	Hannah McBlain	05:03:00	03:03:00	05:03:00	Wind 1 W, rain 0, cloud 0/8, temp start 11 end 9	Big bat and pipistrelle activity recorded on detectors, one bat seen foraging above hedgerow.	N	N		
49	282	300979 374411	16/04/2021	21/07/2021	Oak	M	yes	BT31, BT32	14/07/2021	Hannah McBlain	05:03:00	03:03:00	05:03:00	Wind 1 W, rain 0, cloud 0/8, temp start 11 end 9	Big bat and pipistrelle activity recorded on detectors, one bat seen foraging above hedgerow.	N	M		
50	272	301086 374404	16/04/2021	21/07/2021	Oak	H	No	BT28	13/07/2021	Hannah McBlain	21:36:00	21:36:00	23:06:00	Wind 2 W, rain 0, cloud 0/8, temp start 14 end 13	Surveyor location changed due to cows, in opposite field near to BT29. 22:15 big bat calls recorded, 22:25 bat seen in open cow field.	N	H		
									29/07/2021	Hannah McBlain	05:26:00	03:26:00	05:26:00	Wind 2 N, rain 0, cloud 4/8, temp start 12 end 11	03:25 bat seen with thermal imaging camera flying over hedgerow, not recorded on detector. 03:37 pipistrelle flying above field.	N			
									08/09/2021	Hannah McBlain	19:46:00	19:31:00	21:16:00	Wind 0, rain 0, cloud 7/8, temp start 21 end 19	No roosts detected at T50. Noctules and common pipistrelles recorded foraging. However, lots of activity at tree adjacent to pond, to north of T50. Up to two bats seen at that tree, common and soprano pipistrelle detected from 20:30 onward.	N			Lots of activity at tree adjacent to pond, to north of T50. Up to two bats seen at that tree, common and soprano pipistrelle detected from 20:30 onward.
51	270	301013 374394	16/04/2021	21/07/2021	Oak	N	yes	BT29, BT30	14/07/2021	Charlie Kempson	05:03:00	03:03:00	05:03:00	Wind 2 W, rain 0, cloud 0/8, temp start 15 end 8	Pipistrelle and noctule bats foraging overhead/behind.	N	N		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
52	271	301030 374390	16/04/2021	21/07/2021	Oak	M		BT29, BT30	14/07/2021	Charlie Kempson	05:03:00	03:03:00	05:03:00	Wind 2 W, rain 0, cloud 0/8, temp start 15 end 8	Pipistrelle and noctule bats foraging overhead/behind.	N	M		
53	283	301043 374386	16/04/2021	21/07/2021	Oak	N		BT29, BT30	14/07/2021	Charlie Kempson	05:03:00	03:03:00	05:03:00	Wind 2 W, rain 0, cloud 0/8, temp start 15 end 8	Pipistrelle and noctule bats foraging overhead/behind.	N	N		
54	273	301059 374383	16/04/2021	21/07/2021	Oak	L		BT29, BT30	14/07/2021	Charlie Kempson	05:03:00	03:03:00	05:03:00	Wind 2 W, rain 0, cloud 0/8, temp start 15 end 8	Pipistrelle and noctule bats foraging overhead/behind.	N	L		
55	266	300909 374361	16/04/2021	21/07/2021	Oak	M		BT34, BT35	14/07/2021	Hannah McBlain	21:32:00	21:17:00	23:07:00	Wind 3 W, rain 0, cloud 2/8, temp start 18 end 16	Pipistrelles foraging. 22:00 noctule heard not seen. 22:09 two pipistrelles seen at once along wall/treeline.	N	M		
56	273	301077 374348	16/04/2021	22/07/2021	Oak	N	yes	BT33	14/07/2021	Rachel Seddon	21:32:00	21:20:00	23:02:00	Wind 3 W, rain 0, cloud 1/8, temp 18	No roosts, noctule calls recorded.	N	N		
57	281	300903 374343	16/04/2021	21/07/2021	Oak	M	yes	BT34, BT35	14/07/2021	Hannah McBlain	21:32:00	21:17:00	23:07:00	Wind 3 W, rain 0, cloud 2/8, temp start 18 end 16	Pipistrelles foraging. 22:00 noctule heard not seen. 22:09 two pipistrelles seen at once along wall/treeline. 22:34 two badgers on thermal imagining cameras below trees.	N	M		
58	265	300898 374327	16/04/2021	21/07/2021	Oak	M	yes	BT34, BT35	14/07/2021	Hannah McBlain	21:32:00	21:17:00	23:07:00	Wind 3 W, rain 0, cloud 2/8, temp start 18 end 16	22:31 pipistrelle flew over tree 58. Pipistrelles foraging. 22:00 noctule heard not seen. 22:09 two pipistrelles seen at once along wall/treeline.	N	M		
59	274	301066 374313	16/04/2021	22/07/2021	Oak	M	yes	BT33	14/07/2021	Rachel Seddon	21:32:00	21:20:00	23:02:00	Wind 3 W, rain 0, cloud 1/8, temp 18	No roosts, noctule calls recorded.	N	M		

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60	280	300892 374311	16/04/2021	21/07/2021	Oak	M		BT34, BT35	14/07/2021	Hannah McBlain	21:32:00	21:17:00	23:07:00	Wind 3 W, rain 0, cloud 2/8, temp start 18 end 16	Pipistrelles foraging. 22:00 noctule heard not seen. 22:09 two pipistrelles seen at once along wall/treeline. 22:34 two badgers on thermal imaging cameras below trees.	N	M		
61	264	300818 374263	16/04/2021	23/07/2021	Oak	H	yes	BT36	14/07/2021	Charlie Kempson	21:34:00	21:19:00	23:04:00	Wind 1 W, rain 0, cloud 2/8, temp 17	22:00 noctules foraging behind, 22:23-50 pipistrelle foraging behind.	N	H		
									04/08/2021	Liz Probert	05:35:00	04:00:00	05:45:00	Wind 0, rain 0, cloud 5/8, temp start 12 end 13	Several pipistrelle passes heard not seen.	N			
									09/09/2021	Hannah McBlain	06:36:00	05:06:00	06:36:00	Wind 0, rain light showers, temp start 19 end 17	None roosting. Only four calls detected.	N			
62	279	300909 374245	16/04/2021	21/07/2021	Oak	M	yes	BT37	15/07/2021	Rachel Seddon	05:04:00	03:04:00	05:04:00	Wind 4 W, rain 0, cloud 7/8, temp 16	Bat seen flying between tree 62 and 63 04:06.	N	M		
63	264	300873 374198	16/04/2021	22/07/2021	Oak	M	yes	BT38	15/07/2021	Carney Bruvill	05:05:00	02:58:00	05:05:00	Wind 2, rain 0, cloud 5/8, temp start 15 end 16	2:58 pipistrelle heard not seen, 3:21 noctule commuting south along fence line, 4:24 soprano pipistrelle commuting south.	N	M		

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64	278	300810 374154	16/04/2021	22/07/2021	Oak	H	yes	BT39	15/07/2021	Hannah McBlain	05:05:00	03:05:00	05:05:00	Wind 4 W, rain 0, cloud 7/8, temp start 18 end 16	Starting at 03:50 until 04:27 more than 10 pipistrelle bats are seen flying into an entry point on the trunk, confirmed access hole on left side facing BT39, possible second access point at higher notch in trunk. Heat signature detected on tree. 04:33 four lower frequency bat calls.	Y	Roost	15.07.21 at least 10 common pipistrelle (species verified through sound analysis) return to roost at PRF 1 and 2. 22.07.21 no evidence of roost during PRF inspection. 29.07.21 noctule suspected to return to roost, entry point uncertain. Assessed as common pipistrelle maternity roost and noctule dayroost.	
									29/07/2021	Charlie Kempson	05:25:00	03:25:00	05:25:00	Wind 1, rain 0, cloud 3/8, temp 13	04:30 suspected noctule flew towards tree from west, unsure of entry point. Lots of noctule calls all survey, foraging overhead, only one pipistrelle call.	Y			
65	261	301014 374143	16/04/2021	22/07/2021	Oak	N	yes	BT41	15/07/2021	Hannah McBlain	21:33:00	21:18:00	23:03:00	Wind 1 N, rain 0, cloud 0/8, temp start 15 end 14	Quiet night, 22:00 one pipistrelle fly over trees, 22:11 one pipistrelle fly over field.	N	N		
66	263	300810 374121	16/04/2021	22/07/2021	Oak	N	yes	BT39	15/07/2021	Hannah McBlain	05:05:00	03:05:00	05:05:00	Wind 4 W, rain 0, cloud 7/8, temp start 18 end 16	No activity near to this tree, all centred around T64.	N	N		
67	275	301003 374109	16/04/2021	22/07/2021	Oak	L	yes	BT41	15/07/2021	Hannah McBlain	21:33:00	21:18:00	23:03:00	Wind 1 N, rain 0, cloud 0/8, temp start 15 end 14	Quiet night, 22:00 one pipistrelle fly over trees, 22:11 one pipistrelle fly over field.	N	L		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
68	262	300870 374091	16/04/2021	22/07/2021	Oak	H	yes	BT40	15/07/2021	Charlie Kempson	05:05:00	03:05:00	05:05:00	Wind 4 W, rain 0, cloud 7/8, temp 18	03:20 one pipistrelle entering tree 8m high on north aspect, unsure of exact entry but bat flew directly at tree and then visual lost. Several pipistrelles and noctules foraging around T68 for most of the night until sunrise. Observation point from opposing field due to access issues.	Y	Roost	15.07.21 one common pipistrelle suspected return to roost, entry point uncertain. 22.07.21 and 09.09.21 no evidence of roost. Assessed as common pipistrelle dayroost.	
									29/07/2021	Fiona Brydon	05:25:00	03:20:00	05:23:00	Wind 2, rain 0, cloud 2/8, temp start 14 end 13	No roosts detected, noctules foraging in field.	N			
									09/09/2021	Hannah McBlain	06:36:00	05:06:00	06:36:00	Wind 0, rain light showers, temp start 19 end 17	None roosting.	N			
69	277	300878 374081	16/04/2021	22/07/2021	Oak	N	yes	BT40	15/07/2021	Charlie Kempson	05:05:00	03:05:00	05:05:00	Wind 4 W, rain 0, cloud 7/8, temp 18	No activity at T69, all centred around T68.	N	N		
70	276	300933 374064	16/04/2021	22/07/2021	Oak	M	yes	BT42	15/07/2021	Rachel Seddon	21:33:00	21:20:00	23:05:00	Wind ?, rain 0, cloud?, temp 15	Bat activity at top of tree from 22:03- 22:30, at least two bats. Batlogger not recording activity unless stood underneath tree 22:15-22:45.	N	M		

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71	209	300878 373913	20/08/2020	22/07/2021	Oak	M	yes	BT44, BT45	20/07/2021	Hannah McBlain	21:27:00	21:18:00	23:13:00	Wind 1 NE, rain 0, cloud 0/8, temp start 18 end 16	No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging camera photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.	N	M		20.07.21 No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.
									04/08/2021	Amy Gill	05:35:00	04:05:00	05:35:00	Wind 2 N, rain 0, cloud 8/8, temp start 13 end 10	Light rain before survey but non throughout. BT44 -one soprano pipistrelle flew past surveyor at 04:40 and exited field to east.	N			

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72	267	300829 373912	20/08/2020	Over road: no climb/PRA from ground	Oak	M	no	BT44, BT45	20/07/2021	Hannah McBlain	21:27:00	21:18:00	23:13:00	Wind 1 NE, rain 0, cloud 0/8, temp start 18 end 16	No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging camera photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.	N	M		20.07.21 No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.
									04/08/2021	Amy Gill	05:35:00	04:05:00	05:35:00	Wind 2 N, rain 0, cloud 8/8, temp start 13 end 10	Light rain before survey but non throughout.	N			
73	265	301043 373910	16/04/2021	Over road: no climb/PRA from ground	Oak	M	no	BT43	20/07/2021	Jess Colebrook	21:28:00	21:15:00	23:00:00	Wind 0, rain 0, cloud 0/8, temp 20	Very warm weather for days prior. 22:12 first bat heard not seen - soprano pipistrelle. One common pipistrelle foraging over field/near trees thereafter. Noctule/big bats occasionally heard not seen during survey. Max one bat at any one time. Gibbous moon.	N	M		

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74	266	300850 373909	20/08/2020	Over road: no climb/PRA from ground	Oak	L	no	BT44, BT45	20/07/2021	Hannah McBlain	21:27:00	21:18:00	23:13:00	Wind 1 NE, rain 0, cloud 0/8, temp start 18 end 16	No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging camera photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.	N	L		20.07.21 No emergences but a lot of pipistrelle foraging activity (>1 hr after sunset) above 71, 72, 74, six bats counted in one observation. Thermal imaging photos and videos available. 22:47 three pipistrelles foraging over trees, 22:49 - 23:12 consistent foraging above all three trees.
									04/08/2021	Amy Gill	05:35:00	04:05:00	05:35:00	Wind 2 N, rain 0, cloud 8/8, temp start 13 end 10	Light rain before survey but non throughout.	N			
75	211	300740 373906	20/08/2020	Over road: no climb/PRA from ground	Oak	M	no	BT46, BT47	21/07/2021	Hannah McBlain	05:15:00	03:30:00	05:15:00	Wind 1 N, rain 0, cloud 0/8, temp start 13 end 13	03:53 pipistrelle bat fly over field, 04:31 noctule? observed and recorded. Quiet overall.	N	M		
									04/08/2021	Hannah McBlain	05:33:00	04:03:00	05:33:00	Wind 2 E, rain 0, cloud 6/8, temp start 11 end 9	No observations, recording 04:15 pipistrelle, 04:54 noctule.	N			
76	268	300687 373900	20/08/2020	Over road: no climb/PRA from ground	Oak	L	no	BT46, BT47	21/07/2021	Hannah McBlain	05:15:00	03:30:00	05:15:00	Wind 1 N, rain 0, cloud 0/8, temp start 13 end 13	03:53 pipistrelle fly over field, 04:31 noctule? observed and recorded. Quiet overall.	N	L		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
77	212	300701 373899	20/08/2020	Over road: no climb/PRA from ground	Oak	L	no	BT46, BT47	21/07/2021	Hannah McBlain	05:15:00	03:30:00	05:15:00	Wind 1 N, rain 0, cloud 0/8, temp start 13 end 13	BT46- 03:53 pipistrelle fly over field, 04:31 noctule? observed and recorded. Quiet overall BT47- two big bats flying toward T77.	N	L		
78	214	300749 373758	29/07/2021	29/07/2021	Oak	N	yes	BT48	20/07/2021	Liz Probert	21:28:00	21:20:00	23:00:00	Wind 0, rain 0, cloud 2/8, temp start 19 end 16	No bats seen. Batlogger time is 1hr ahead of actual time.	N	N		
79	251	301518 373630	10/08/2020	23/07/2021	Oak	H	yes	BT58, BT59	22/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 0, rain 0, cloud 0/8, temp 16	Noctule and pipistrelle calls throughout survey, not seen near surveyed trees 79, 81, 83, 84, 86.	N	H		
									04/08/2021	Amy Gill	21:04:00	20:49:00	22:34:00	Wind 0, rain 0, cloud 3/8, temp start 17 end 12	No access to BT59 - cows. Couple of noctule passes early on, bats commuting north. Noctule and pipistrelles noted foraging in fields in front and behind surveyor.	N			
80	242	300962 373620	20/04/2021	26/07/2021	Oak	M	yes	BT49	21/07/2021	Charlie Kempson	05:13:00	03:40:00	05:30:00	Wind 0, rain 0, cloud 6/8, temp 15	Four or up to five noctules foraging in field to surveyors right and overhead briefly.	N	M		21.07.21 Four or up to five noctules foraging in field to surveyors right and overhead briefly.
81	250	301508 373616	20/04/2021	26/07/2021	Oak	Roost	yes	BT58, BT59	22/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 0, rain 0, cloud 0/8, temp 16	Noctule and pipistrelle calls throughout survey, not seen near surveyed trees 79, 81, 83, 84, 86.	N	Roost	22.07.21 no evidence of roost. 26.07.21 One pipistrelle bat observed	

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
									04/08/2021	Amy Gill	21:04:00	20:49:00	22:34:00	Wind 0, rain 0, cloud 3/8, temp start 17 end 12	No access to BT59 - cows. Couple of noctule passes early on, bats commuting north. Noctule and pipistrelle bats noted foraging in fields in front and behind surveyor.	N		within PRF 2; no droppings available for collection. 04.08.21 no evidence of roost. Assessed as common or soprano pipistrelle dayroost.	
83	248	301524 373607	26/07/2021	26/07/2021	Ash	N	yes	BT58, BT59	22/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 0, rain 0, cloud 0/8, temp 16	Noctule and pipistrelle calls throughout survey, not seen near surveyed trees 79, 81, 83, 84, 86.	N	N		
84	247	301554 373603	10/09/2020	26/07/2021	Oak	N	yes	BT58, BT59	22/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 0, rain 0, cloud 0/8, temp 16	Noctule and pipistrelle calls throughout survey, not seen near surveyed trees 79, 81, 83, 84, 86.	N	N		
86	249	301539 373601	26/07/2021	26/07/2021	Oak	M	yes	BT58, BT59	22/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 0, rain 0, cloud 0/8, temp 16	Noctule and pipistrelle calls throughout survey, not seen near surveyed trees 79, 81, 83, 84, 86.	N	M		
87	241	300948 373600	20/04/2021	26/07/2021	Oak	L	yes	BT49	21/07/2021	Charlie Kempson	05:13:00	03:40:00	05:30:00	Wind 0, rain 0, cloud 6/8, temp 15	Four or up to five noctules foraging in field to surveyors right and overhead briefly.	N	L		21.07.21 Four or up to five noctules foraging in field to surveyors right and overhead briefly.

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
88	260	301356 373563	20/08/2020	23/07/2021	Oak	N	yes	BT54, BT55	21/07/2021	Hannah McBlain	21:26:00	20:50:00	22:56:00	Wind 0, rain 0 , cloud 0/8, temp start 19 end 16	Arrived early started 20 minutes early, 22:18 pipistrelle fly over field, 22:23 one pipistrelle flew southwest across the path 88,89,91,94, 22:34 noctule pass.	N	N		
89	259	301342 373537	23/07/2021	23/07/2021	Oak	N	yes	BT54, BT55	21/07/2021	Hannah McBlain	21:26:00	20:50:00	22:56:00	Wind 0, rain 0 , cloud 0/8, temp start 19 end 16	Arrived early started 20 minutes early, 22:18 pipistrelle fly over field, 22:23 one pipistrelle flew southwest across the path 88,89,91,94, 22:34 noctule pass.	N	N		
90	246	301525 373531	10/09/2020	26/07/2021	Oak	L	yes	BT60, BT61	22/07/2021	Liz Probert	21:20:00	21:05:00	22:50:00	Wind 0, rain 0, cloud 5/8, temp 20	Numerous noctule passes from 22:06 most heard not seen but five passes seen low over woodland east of BT61.	N	L		
91	258	301332 373521	23/07/2021	23/07/2021	Oak	M	yes	BT54, BT55	21/07/2021	Hannah McBlain	21:26:00	20:50:00	22:56:00	Wind 0, rain 0 , cloud 0/8, temp start 19 end 16	Arrived early started 20 minutes early, 22:18 pipistrelle fly over field, 22:23 one pipistrelle flew southwest across the path 88,89,91,94, 22:34 noctule pass.	N	M		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
92	None	300912 373519	27/08/2020	N/A				BT51	21/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 1 N, rain 0, cloud 3/8, temp start 15 end 16	Soprano pipistrelle at start of survey, 04:30 noctule commuting north to south and approx approx. three subsequent passes low and in direction of substation.	N	Not assessed		Scoped out after design change
									21/07/2021	Liz Probert	21:29:00	21:15:00	23:00:00	Wind 0, rain 0, cloud 2/8, temp start 18 end 20	Surveyed along lane - access to BT52 not possible. 22:00 soprano pipistrelle commuting east to west along lane. Numerous pipistrelle passes along lane between 22:00 and 23:00, none seen emerging from trees.	N			
93	None	300913 373513	20/04/2021	N/A				BT51	21/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 1 N, rain 0, cloud 3/8, temp start 15 end 16	Soprano pipistrelle at start of survey, 04:30 noctule commuting north to south and approx approx. three subsequent passes low and in direction of substation.	N	Not assessed		Scoped out after design change
									21/07/2021	Liz Probert	21:29:00	21:15:00	23:00:00	Wind 0, rain 0, cloud 2/8, temp start 18 end 20	Surveyed along lane - access to BT52 not possible. 22:00 soprano pipistrelle commuting east to west along lane. Numerous pipistrelle passes along lane between 22:00 and 23:00, none seen emerging from trees.	N	Not assessed		Scoped out after design change

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
94	257	301333 373512	10/09/2020	23/07/2021	Oak	N	yes	BT54, BT55	21/07/2021	Hannah McBlain	21:26:00	20:50:00	22:56:00	Wind 0, rain 0 , cloud 0/8, temp start 19 end 16	Arrived early started 20 minutes early, 22:18 pipistrelle fly over field, 22:23 one pipistrelle flew southwest across the path 88,89,91,94, 22:34 noctule pass.	N	N		
95	245	301509 373507	10/09/2020	26/07/2021	Oak	M	yes	BT60, BT61	22/07/2021	Liz Probert	21:20:00	21:05:00	22:50:00	Wind 0, rain 0, cloud 5/8, temp 20	Numerous noctule passes from 22:06 most heard not seen but five passes seen low over woodland east of BT61.	N	M		
96	None	300933 373501	20/04/2021	N/A				BT51	21/07/2021	Liz Probert	05:13:00	04:45:00	05:30:00	Wind 1 N, rain 0, cloud 3/8, temp start 15 end 16	Soprano pipistrelle at start of survey, 04:30 noctule commuting north to south and approx approx. three subsequent passes low and in direction of substation.	N	Not assessed		
									21/07/2021	Liz Probert	21:29:00	21:15:00	23:00:00	Wind 0, rain 0, cloud 2/8, temp start 18 end 20	Surveyed along lane - access to BT52 not possible, unable to open field gate. 22:00 soprano pipistrelle commuting east to west along lane. Numerous pipistrelle passes along lane between 22:00 and 23:00, none seen emerging from trees.	N			

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
97	244	301482 373482	26/07/2021	26/07/2021	Oak	M	yes	BT60, BT61	22/07/2021	Liz Probert	21:20:00	21:05:00	22:50:00	Wind 0, rain 0, cloud 5/8, temp 20	Numerous noctule passes from 22:06 most heard not seen but five passes seen low over woodland east of BT61.	N	M		
98	252	301073 373469	20/08/2020	26/07/2021	Oak	N	yes	BT53	21/07/2021	Charlie Kempson	21:26:00	20:40:00	23:00:00	Wind 1, rain 0, cloud 0/8, temp 21	Pipistrelle foraging on far side of field between 22:45 and 23:00.	N	N		
99	256	301319 373449	23/07/2021	23/07/2021	Oak	M	yes	BT56, BT57	22/07/2021	Hannah McBlain	05:13:00	03:40:00	05:25:00	Wind 0, rain 0, cloud 0/8, temp start 16 end 13	04:26 noctule fly over BT57, 04:35 bat seen not heard flying near BT56. Quiet night.	N	M		
100	255	301331 373443	23/07/2021	23/07/2021	Oak	L	yes	BT56, BT57	22/07/2021	Hannah McBlain	05:13:00	03:40:00	05:25:00	Wind 0, rain 0, cloud 0/8, temp start 16 end 13	04:26 noctule fly over BT57, 04:35 bat seen not heard flying near BT56. Quiet night.	N	L		
101	254	301340 373434	23/07/2021	23/07/2021	Oak	M	yes	BT56, BT57	22/07/2021	Hannah McBlain	05:13:00	03:40:00	05:25:00	Wind 0, rain 0, cloud 0/8, temp start 16 end 13	04:26 noctule fly over BT57, 04:35 bat seen not heard flying near BT56. Quiet night.	N	M		
102	253	301294 373434	23/07/2021	23/07/2021	Oak	N	yes	BT56, BT57	22/07/2021	Hannah McBlain	05:13:00	03:40:00	05:25:00	Wind 0, rain 0, cloud 0/8, temp start 16 end 13	04:26 noctule fly over BT57, 04:35 bat seen not heard flying near BT56. Quiet night.	N	N		
105	299	301706 374909	19/07/2021	19/07/2021	Dead	M		BT63, BT64	28/07/2021	Charlie Kempson	21:15:00	21:00:00	22:45:00	Wind 2, rain light to heavy showers, cloud 8/8, temp start 15 end 14.5	Pipistrelles foraging in field.	N	M		
107	297	301748 375005	19/07/2021	19/07/2021	Dead	M		BT65, BT66	28/07/2021	Charlie Kempson	05:24:00	03:24:00	05:24:00	Wind 1, rain drizzle/mist, cloud 6/8, temp 16	Pipistrelles foraging in field behind tree.	N	M		

Tree Number on Plan	Tag Number	Easting Northing	Prelim inspection date	Climbing Survey Date	Tree Species	Tree Category After Climb	Full Inspection Possible	Obs point	Dusk/Dawn Survey Date	Lead surveyor name	Sunset/Sunrise	Start time	Finish Time	Weather Conditions	Notes	Roost Y/N	Final Tree Category	Roost Details	Other notable details.
108	296	301760 375051	19/07/2021	19/07/2021	Dead	M		BT67, BT68	27/07/2021	Charlie Kempson	05:22:00	03:22:00	05:22:00	Wind 1, rain 0, cloud 0/8, temp 16	Pipistrelle bat foraging, unsure where due to low visibility but not close to surveyed tree.	N	M		
110	294	301756 375029	19/07/2021	19/07/2021	Willow sp	M		BT69, BT70	28/07/2021	Hannah McBlain	05:24:00	03:24:00	05:24:00	Wind 1, rain light showers, cloud 8/8, temp start 15 end 13	No bats seen, pipistrelle recorded at 03:24. Rain between 03:40-47 and light shower at 04:02.	N	M		
111	293	301757 375029	19/07/2021	19/07/2021	Elm sp.	M		BT71, BT72	27/07/2021	Charlie Kempson	21:17:00	21:02:00	22:47:00	Wind 1, rain 0, cloud 6/8, temp 19	Nothing detected.	N	M		
113	291	301784 374995	19/07/2021	19/07/2021	Willow sp	M		BT73, BT74	27/07/2021	Hannah McBlain	21:17:00	21:02:00	22:47:00	Wind 1, rain 0, cloud 7/8, temp start 18 end 16	Quiet, still night. One big bat detected.	N	M		
117	299	301922 374949	19/07/2021	19/07/2021	Sycamore	M		BT75, BT76	27/07/2021	Hannah McBlain	05:21:00	03:21:00	05:21:00	Wind 1, rain 0, cloud 7/8, temp start 17 end 14	Reliant on TI camera due to low light levels. Possible pip pass behind tree 03:40. 04:41 pipistrelle HNS	N	M		
128	286	301874 374917	19/07/2021	19/07/2021	Willow sp	M		BT77, BT78	26/07/2021	Charlie Kempson	21:19:00	21:04:00	22:49:00	Wind 0, rain 0, cloud 2/8, temp 21	Nil	N	M		
131	284	301814 374957	19/07/2021	19/07/2021	Silver birch	M		BT79, BT80	26/07/2021	Hannah McBlain	21:19:00	21:04:00	22:49:00	Wind 1, rain 0, cloud 7/8, temp start 18 end 17	No observations, quiet survey	N	M		

APPENDIX 4

Tree 21 droppings: DNA lab results

APPENDIX 5

Transect Survey Results: Surveyor notes

Date	Transect Number	Surveyors	Constraints	Sunset/ Sunrise time	Start time	End time	Start weather	End weather	Location	Time	Bat species	Number seen at one time	Observations
12/04/21	1	Emma Clarke and Amy Gill	Cold	20:09	20:09	22:55	6°C, 3mph NNW Wind, 1/8 Cloud, 0 Rain	4°C, 3mph WSW Wind, 2/8 Cloud, 0 rain	N/a	N/a	N/a	N/a	No bats.
19/04/21	2	Emma Clarke and Amy Gill	None	20:21	20:21	22:28	11°C, 5mph WNW Wind, 3/8 Cloud, 0 Rain	6°C, 2mph WSW Wind, 4/8 Cloud, 0 Rain	SJ 01464 78647	20:55	N.noc	0	Heard not seen
									SJ 01464 78647	20:56	N.noc	1	Flying NE->SW from river side over to fields
									SJ 01464 78647	21:00	N.noc	1	NE->SW, high pass
									SJ 01707 78479	21:08	P.pip	2	Foraging between river and path
									SJ 01707 78479	21:11	P.pip and possible P.pyg	1	Foraging
									Batlogger Malfunction	21:18	-		Continued activity as walking SE along river
									SJ 01969 78176	21:23	P.pip	1	Foraging under bridge
									SJ 02060 78136	21:25	P.pip	1	Heard not seen
									SJ 02158 78056	21:29	P.pyg	1	Foraging over path / between treeline
									SJ 01810 78054	21:40	P.pip	1	Brief foraging pass
									SJ 01556 78305	21:50	P.pyg	1	Foraging

20/04/21	3	Emma Clarke and Amy Gill	None	20:23	20:23	22:39	9°C, 4mph NW Wind, 6/8 Cloud, 0 Rain	4°C, 3mph WSW Wind, 2/8 Cloud, 0 rain	SJ 02182 77018	20:54	P.pyg	1	Foraging around mature trees (canopy height)
									SJ 01471 76772	21:07	P.pyg	1	Commuting using hedgerow W->E
									SJ 01583 76798	21:11	P.pyg	1	Commuting W->E
									SJ 01708 76303	21:28	P.pyg	1	Commuting along lane N->S
									SJ 00594 75342	21:56	P.pyg	0	Heard not seen - 1 pass
26/04/21	4	Liz Probert and Amy Gill	None	21:34	21:34	23:19	13°C, 0 wind, 8/8, 0 rain	11°C, 0 wind, 8/8, 0 rain	SJ 01158 73646	21:03	Pip sp?	2	Foraging
									SJ 01244 73658	21:06-21:08	P.pip	1	Foraging up and down lane.
									SJ 01364 73569	21:11	Pip sp.	1	Foraging up and down hedge.
									SJ 01313 73283	21:19	P.pip	1	Flying south.
									SJ 01107 73395	21:25	P.pip	1	Foraging.
									SJ 01079 73572	21:32	Pip sp.	1	Foraging.
									1	21:40	Pip sp.	1	Foraging around canopy.
									2	21:51	Pip sp.	0	HNS
									3	22:00	P.pyg	0	HNS
									4	22:20	Pip sp.	1	Foraging around canopy.
									5	22:22	P.pyg	1	Foraging
									6	22:30	Bat	0	HNS

Date	Transect Number	Surveyors	Constraints	Sunset/ Sunrise time	Start time	End time	Start weather	End weather	Location	Time	Bat species	Number seen at one time	Observations
13/05/21	1	Emma Clarke and Amy Gill	None	21:04	21:04	23:44	10°C, 5mph WNW Wind, 6/8 Cloud, 0 rain	9°C, 1mph NW Wind, 8/8 Cloud, 0 Rain	SJ 03717 81500	21:32	P.pip	0	Brief pass - heard not seen
									SJ 03524 81195	21:46	P.pip	1	Bat passing over Line in northerly direction
									SJ 03524 81195	21:51	P.pip	1	Three more passes up and down lane
									SJ 03503 80993	21:54	P.pyg and P.pip	2	Soprano pip flying east along hedgerow, common pip passing over track. Both been foraging.
									SJ 03557 80973	21:57	P.pip	1	Foraging over hedgerow and field
									SJ 03589 80996	21:59	P.pyg and P.pip	2	Foraging - lots of passes
									SJ 03658 80799	22:06	P.pip	1	Foraging
									SJ 03508 80720	22:11	P.pip	1	Foraging
									SJ 03378 80782	22:17	P.pip	1	Foraging
									SJ 03485 80480	22:26	P.pip	0	Brief pass - heard not seen
									SJ 03485 80480	22:27	P.pyg	0	Brief pass - heard not seen
									SJ 03416 80416	22:29	P.pyg	1	Foraging around us
									SJ 03350 80253	22:36	P.pyg	1	Continued foraging
									SJ 03294 79795	23:02	Bat	0	Heard not seen
									SJ 03262 79587	23:08	Bat	0	Heard not seen - 1 pass
									SJ 02886 79557	23:32	Bat	0	Heard not seen - 2 passes
									SJ 02841 79267	23:39	Pip sp	1	Foraging
19/05/21	2		None	21:13	21:13	23:26	13°C, 7mph	8°C, 7mph SSE Wind,	SJ 02103 78978	21:36	P.pip	1	Foraging by hedgerow

		Emma Clarke and Amy Gill						SW Wind, 2/8 Cloud, 0 Rain	2/8 Cloud, 0 Rain	SJ 01632 78817	21:54	P.pyg	1	Heard not seen, brief pass
										SJ 01760 78416	22:12	P.pip	1	Foraging above river / banks
										SJ 01944 78205	22:19	P.pip	1	Foraging around river bank close to bridge
										SJ 02062 78126	22:24	P.pyg	0	Heard not seen
										SJ 02119 78070	22:27	P.pip x2, P.pyg x1	3	Foraging above road / river bank
										SJ 01805 78054	22:39	P.pip	1	Foraging along track next to caravan park
										SJ 01594 78267	22:42	50 pip	1	Foraging above path
										SJ 01320 78528	22:53	P.pyg	1	Flying NW along ditch
										SJ 01387 78441	22:58	P.pyg	1	Foraging in field
										SJ 01405 76199	21:54	P.pip	1	Foraging by woodland, heard and seen
20/05/21	3	Emma Clarke and Amy Gill	Light rain throughout survey	21:14	21:14	23:14	11°C, 16mph SSW, 7/8 Cloud, Drizzle rain	10°C, 13mph SSW, 8/8 Cloud, Light rain throughout survey		SJ 01473 75202	22:29	P.pip	1	Foraging by wood, heard and seen
										SJ 01649 75225	22:47	Bat	0	Quick pass, heard not seen
										SJ 01868 75128	22:58	Bat	1	Brief pass, possibly foraging. Heard and seen
										SJ 01363 74963	21:33	P.pip	1	Commuting
										SJ 01329 74753	21:42	P.pip	1	Commuting east to north
										SJ 01242 74506	21:50	P.pyg	1	Heard and seen along hedge and again at 21:55
										SJ 01050 74589	21:56	50 Pip	0	HNS
										SJ 00998 74663	22:01	P.pip	1	Foraging over hedge.
										SJ 00853 74684	22:05	P.pip	1	Foraging.
										SJ 00822 74557	22:08	P.pyg x1, P.pip x1	2	Foraging overhead, 2 bats until 22:23
27/05/21	4	Emma Clarke and Amy Gill	Cows- changed route	21:25	21:25	23:32	13°C, NW 3mph wind, 7/8, 0 rain	11°C, S 3mph wind, 8/8, very slight spitting in last 10 minutes		SJ 00910 74345	22:25	P.pyg	1	Seen foraging around tree.

SJ 01078 74265	22:33	P.pyg	1	Seen flying up and down hedge.
SJ 00971 73905	22:45	Bat	0	HNS
SJ 01179 73651	23:05	Bat	1	Seen foraging around barns.
SJ 01003 73462	23:11	P.pyg x1, P.pip x1	2	Foraging
SJ 01408 73401	23:25	P.pip	0	HNS

Date	Transect Number	Surveyors	Constraints	Sunset/ Sunrise time	Start time	End time	Start weath er	End weather	Location	Time	Bat species	Number seen at one time	Observations
03/06/21	1	Emma Clarke and Carney Burvill	None	21:33	21:33	00:16	16°C, 8mph SW Wind, 2/8 Cloud, 0 Rain	11°C, 6mph S Wind, 1/8 Cloud, 0 Rain	SJ 03559 81534	21:58	N.noc	1	Foraging high over field moving away SW
									SJ 03486 80612	22:40	P.pyg, P.pip	2	Foraging under willows - one soprano and one common, both foraging
									SJ 03486 80612	22:46	N.noc	1	Heard not seen
									SJ 03492 80553	22:47	P.pip	0	Brief pass, heard not seen
									SJ 03492 80553	22:50	P.pyg	1	Travelling SE along treeline and then foraging
									SJ 03313 80344	22:56	P.pip	0	Heard not seen a couple of times - foraging nearby?
									SJ 03126 80250	23:08	P.pip	1	Seen foraging in distance along hedgerow
									SJ 03269 79800	23:26	P.pip	0	Heard not seen, foraging
									SJ 03274 79592	23:41	P.pip	0	Foraging, heard not seen
									SJ 03024 79716	23:48	P.pyg	0	Foraging near lane, heard not seen
									SJ 03024 79716	23:49	Long-eared?	0	Heard not seen
									SJ 02957 7978	23:50	P.pyg	1	Flying NW along track
									SJ 02749 79838	00:00	P.pyg, P.pip	2	Foraging near woodland edge
09/06/21	2	Emma Clarke and Carney Burvill	None	21:40	21:35	23:40	18°C, 8mph SSW Wind, 6/8 Cloud, 0 Rain	16°C, 3mph S Wind, 4/8 Cloud, 0 Rain	SJ 01734 78444	22:17	N.noc	0	Heard not seen - possibly too high to see next to river
									SJ 01929 78214	22:23	P.pip	0	Heard not seen - quiet call / brief
									SJ 01964 78178	22:25	P.pip	1	Foraging and moving away east of bridge
									SJ 02174 78054	22:31	P.pip	1	Foraging over path next to river
									SJ 02174 78054	22:32	N.noc	0	Heard not seen

									SJ 01486 75199	23:11	P.pyg	1	Foraging around us
									SJ 1413 75058	23:16	P.pip	1	Foraging in field corner
									SJ 01504 75032	23:19	Myotis, P.pyg	2	Foraging under tree canopy
11/06/21	3	Emma Clarke and Carney Burvill	None	04:47	02:47	04:47	17°C, 10mph SSW, 6/8 Cloud, 0 rain	16°C, 10mph SW, 8/8 Cloud, 0 rain	SJ 01009 77364	03:05	P.pyg	1	Foraging near to treeline
									SJ 01222 77189	03:10	P.pip	1	Seen foraging near field corner
									SJ 01480 76966	03:18	P.pip	1	Foraging around oak / tree corner
									SJ 01392 76193	03:39	P.pyg	1	Foraging field corner
									SJ 00859 74715	22:04	P.pyg	1	Flew north over surveyors head commuting.
									SJ 00908 74361	22:15	P.pyg	0	HNS
									SJ 00894 74087	22:32	P.pyg	1	Foraging up and down hedgerow.
									SJ 00708 74028	22:34	P.pyg, P.pip	2	Foraging overhead.
									SJ 00730 73920	22:42	P.pip, P.pyg	2	Foraging over hedgerow. P.pyg joining at 22:45, activity until 22:52.
16/06/21	4	Amy Gill and Carney Burvill	None	21:44	21:44	23:50	16°C, 0 wind, 8/8, 0 rain, humid	13°C, 0 wind, 8/8, 0 rain, humid	SJ 00829 73843	22:54	P.pip	2	Foraging along hedgerow.
										23:05	P.pyg	0	HNS
									SJ 00900 73774	23:09	P.pyg	1	Foraging
										23:11	P.pip	1	Foraging
									SJ 01069 73598	23:19	P.pip	1	HNS then commuting at 23:21
										23:29	P.pip	0	HNS foraging
									SJ 01122 73424	23:33	P.pip	1	Foraging amongst trees
									SJ 01354 73583	23:39	P.pyg	1	Foraging up and down hedgerow.
									SJ 01272 73409	23:47	P.pyg	1	Flew overhead.

									SJ 01362 73280	02:47	P.pip	0	HNS
									SJ 01408 73370	02:51	P.pyg	0	HNS
									SJ 01125 73578	03:10	P.pip	1	Foraging
									SJ 01078 73592	03:15	P.pip	0	HNS
									SJ 00930 73670	03:18	P.pip	0	HNS foraging.
									SJ 00729 73759	03:34	P.pip	1	Flying south over surveyor head. Then foraging up and down hedgerow.
										03:39	P.pyg, P.pip	2	P.pyg joining the above bat. 2 seen foraging
									SJ 00877 73937	03:46	P.pyg	1	Flying west
									SJ 00687 73926	03:52	P.pip	0	HNS
									SJ 00708 74028	04:00	P.pyg	1	Flying south along hedgeline.

17/06/21

4

Amy Gill
and
Carney
Burvill

None

04:45

02:44

04:52

14°C,
0 wind,
7/8, 0
rain

13°C, 0
wind, 8/8,
0 rain

Date	Transect Number	Surveyors	Constraints	Sunset/ Sunrise time	Start time	End time	Start weather	End weather	Location	Time	Bat species	Number seen at one time	Observations
06/07/21	1	Amy Gill and Hannah McBlain	Route amended due to cattle and dense vegetation	21:42	21:44	00:03	15°C, 1/12 Wind, 8/8 Cloud, 0 Rain	15°C, 1/12 Wind, 8/8 Cloud, 0 Rain	SJ 03679 80620	22:25	P.pip	0	Heard not seen
									SJ 03472 80499	22:32	P.pyg	0	Heard not seen
									SJ 03123 80268	22:50	P.pyg	1	Foraging up and down hedgerow
									SJ 02994 80108	22:58	P.pip	1	Foraging up and down hedgerow
									SJ 03147 79619	23:24	P.pyg	1	Heard and seen, flying between two oak trees
									SJ 02612 79189	00:02	P.pip	1	Heard and seen, foraging
07/07/21	1	Amy Gill and Hannah McBlain	Route amended due to cattle and dense vegetation	04:55	02:57	04:59	17°C, 1/12 Wind, 8/8 Cloud, 0 Rain	15°C, 1/12 Wind, 7/8 Cloud, 0 Rain	SJ 02591 79173	02:59	P.pip	1	Foraging in hedgerow
									SJ 02871 79356	03:07	P.pip	1	Foraging in hedgerow
									SJ 03275 80082	04:02	P.pip	2	Foraging in hedgerow
									SJ 03517 81176	04:27	Big bat sp	1	Foraging in hedgerow
12/07/21	2	Amy Gill and Carney Burvill	None	21:37	21:37	23:39	18°C, 1/12 Wind, 8/8 Cloud, 0 Rain	17°C, 1/12 Wind, 8/8 Cloud, 0 Rain	SJ 01969 78229	22:18	P.pip	0	Heard not seen
									SJ 02104 78084	22:23	P.pyg P.pip	2	Flying over surveyors by church. Common pip seen foraging by trees near church
									SJ 01833 78028	22:39	P.pyg	1	Heard and seen, foraging overhead
13/07/21	3	Amy Gill and Carney Bruvill	Detector stopped recording between 22:09 and 22:32	21:36	21:36	23:41	17°C, E 2 wind, 2/8, 0 rain	13°C, 1 wind, 1/8, 0 rain	SJ 01474 76927	21:58	N.noc, P.pip	0	HNS
									SJ 01461 76187	22:37	P.pip, P.pyg	3	Foraging around woodland.
									SJ 01531 76005	22:43	P.pyg	1	Foraging overhead.
									SJ 01570 75800	22:48	P.pyg	1	Foraging under oak.
									SJ 01431 75103	23:06	P.pyg	1	Foraging along hedgerow.

20/07/21	4	Amy Gill and Charlie Kempson	None	21:28	21:28	23:30	19°C, 0 wind, 0/8, 0 rain	17°C, 0 wind, 0/8, 0 rain	SJ 01613 75187	23:15	P.pyg	1	Foraging overhead.
									SJ 01076 73992	22:18	Noc? & P.pyg	1	Seen flying around canopy.
									SJ 00894 74087	22:25	Pip sp.	1	Foraging along hedgerow.
									SJ 00730 73920	22:35	Pip sp.	1	Foraging around oak tree on opposite side of road.

Date	Transect Number	Surveyors	Constraints	Sunset/Sunrise time	Start time	End time	Start weather	End weather	Location	Time	Bat species	Number seen at one time	Observations
02/08/21	1	Amy Gill and Amy Wainwright	Rain at start of survey	21:03	21:00	23:11	17°C, 2/12 NE Wind, 8/8 Cloud, 0 Rain at start of survey - heavy rain prior to start of survey	15°C, 1/12 Wind, 8/8 Cloud, 0 Rain	SJ 03595 81920	21:08	N.noc	1	A few passes - seen foraging
									SJ 03613 81594		Pip sp	1	Quick pass
									SJ 03516 81101	21:45	P.pip, P.pyg	2	Foraging along hedgerow
									SJ 03303 80141	22:20	P.pyg	2	2 foraging along hedgerow
									SJ 03018 80064	22:40	P.pyg	1	Foraging
09/08/21	2	Emma Clarke and Amy Gill	None	20:55	20:55	22:55	14°C, 2/12 S Wind, 3/8 Cloud, 0 Rain	15°C, 1/12 SE Wind, 8/8 Cloud, 0 Rain	SJ 01445 78690	21:29	N.noc	0	Heard not seen
									SJ 01876 78345	21:42	P.pip	0	Heard not seen
									SJ 02153 78061	21:45	P.pip	2	Foraging, again at church
									SJ 01857 78000	21:58	P.pip	1	Foraging near bridge
									SJ 01695 78159	22:01	Bat	1	Seen, not heard
									SJ 01526 78335	22:08	P.pip	1	Foraging up and down hedge
									SJ 01326 78305	22:19	P.pyg	1	Foraging overhead
10/08/21	3	Emma Clarke and Amy Gill	None	20:53	20:51	23:15	17°C, WNW 2mph wind, 8/8, 0 rain	4°C, S 4mph wind, 7/8, 0 rain	SJ 01089 77257	21:17	N.noc	1	Commuting in NW direction, high over fields.
									SJ 01144 77217	21:20	P.pyg	2	Both foraging next to line of trees.
										21:21	N.noc	1	Flying high NW over fields.
									SJ 01203 77169	21:23	P.pyg	1	Flying along hedgerow/ditch.
									SJ 01308 77122	21:28	P.pyg	2	Foraging next to hedgerow.
									SJ 01432 77014	21:39	P.pyg	1	Foraging mid field.

										SJ 01505 76768	21:48	P.pyg	1	Brief pass by hedge.
										SJ 01480 76699	21:51	P.pip	1	Foraging along hedgerow.
										SJ 01543 76282	22:05	P.pip	1	Foraging around surveyors/ under tree canopy.
											22:08	Owl?		Flying out from woodland
										SJ 01514 75657	22:23	P.pyg	0	HNS- possibly other side of hedge.
										SJ 01884 75193	23:04	P.pyg	1	Foraging under oak/ next to hedgerow.
										SJ 01914 75068	23:08	P.pyg	1	Foraging under trees over lane.
										SJ 01161 74585	20:57	P.pyg	1	Foraging along hedgerow.
										SJ 01040 74530	21:02	P.pyg	1	Foraging along hedgerow.
										SJ 00931 74448	21:05	N.noc	1	Brief pass.
										SJ 00898 74312	21:12	N.noc	1	Brief pass.
16/08/21	4	Shannon Davis and Amy Gill	None	20:40	20:40	22:40	16°C, 0 wind, 8/8, 0 rain	14°C, 0 wind, 8/8, 0 rain		SJ 00894 74087	21:18	P.pyg	2	Foraging along hedgerow.
										SJ 00809 74131	21:36	P.pyg, P.pip	2	Foraging along hedgerow and around scattered trees.
										SJ 00632 73807	21:57	P.pyg, P.pip	2	Foraging along hedgerow.
										SJ 01005 73622	22:14	P.pyg	1	Foraging along hedge and trees.
										SJ 01312 73499	22:31	P.pip	1	Foraging.
										SJ 01336 73290	22:38	P.pip	1	Foraging along hedgerow.

Date	Transect Number	Surveyors	Constraints	Sunset/ Sunrise time	Start time	End time	Start weath er	End weather	Location	Time	Bat species	Number seen at one time	Observations
06/09/21	1	Shannon Davies and Amy Gill	Route amended due to dense vegetation	19:52	19:50	21:55	18°C, 2/12 Wind, 3/8 Cloud, 0 Rain	16°C, 1/12 Wind, 2/8 Cloud, 0 Rain	SJ 03706 81239	20:15	N.noc	1	Pass - flying south
										20:16	P.pyg	0	Heard not seen
									SJ 03527 81259	20:21	N.noc	1	Pass - flying south
										20:22	P.pip	1	Foraging along hedgerow
									SJ 03527 81259	20:27	P.pyg	2	Foraging along hedgerow
									SJ 03462 80864	20:32	Big bat	1	Foraging along hedgerow
									SJ 03394 80443	20:36-20:49	P.pyg	0	Heard not seen
									SJ 03208 79986	20:55	P.pyg	0	Heard not seen
									SJ 03208 79986	21:04	P.pip	1	Foraging
									SJ 03208 79986	21:17	N.noc	0	Heard not seen
									SJ 03165 79590	21:21	P.pip	0	Heard not seen, foraging
									SJ 02702 79704	21:36	P.pip	0	Heard not seen, brief
13/09/21	2	Shannon Davies and Guy Ostler	None	19:34	19:33	21:36	17°C, 1/12 Wind, 8/8 Cloud, 0 Rain	15°C, 1/12 Wind, 8/8 Cloud, Slight rain	SJ 02034 78889	19:45	P.pyg	1	Foraging along ditch
									SJ 01892 78846	20:00	P.pyg	1	Foraging along riverbanks
									SJ 01668 78821	20:11	P.pip	1	Foraging along riverbanks
										20:12	P.pyg	1	Foraging along riverbanks
									SJ 01573 78597	20:20-20:23	P.pip	1	Foraging along riverbanks
									SJ 01928 78293	20:31	P.pyg and P.pip	3+	Foraging along riverbanks
										20:34	Myotis sp.	1	Foraging along riverbanks
									SJ 01928 78293	20:45	P.pip	1	Foraging around bridge

									SJ 01928 78293	20:49	P.pip	1	Foraging
									SJ 01569 78319	20:55	P.nath	1	Brief
									SJ 01375 78428	20:58	P.pyg	1	Foraging (also an owl seen)
									SJ 01132 78294	21:11	P.pip	1	Brief
									SJ 00966 78134	21:16	P.pyg	1	Brief
									SJ 01233 77966	21:23	P.pip	1	Brief then foraging along hedgerow
									SJ 01501 76881	13:40	N.noc	1	Foraging
									SJ 01447 76764	20:02	P.pyg	1	Brief
									SJ 01456 76507	20:12	P.pyg	1	Foraging along hedge.
									SJ 01450 76317	20:22- 20:26	P.pip	1	Foraging along wood.
14/09/21	3	Guy and Shannon Davis	None	19:33	19:31	21:45	19°C, 1 wind, 2/8, 0 rain	13°C, 1 wind, 1/8, 0 rain	SJ 01587 76438	20:31 - 20:32	P.pyg , Myo sp.	2	No entry?
									SJ 01570 75800	20:51- 20:52	P.pyg	1	Foraging
									SJ 01483 75332	21:04	N.noc?	1	Brief
									SJ 01525 75167	21:11	Myo sp., P.pyg	2	Foraging
									SJ 01730 75083	21:21	Myo sp., P.pip	2	Foraging
									SJ 01730 75083	21:40	P.pyg, P.pip	2	Foraging
									SJ 01336 74745	19:19	P.Pyg	1	Flying near oaks - possible emergence.
20/09/21	4	Shannon Davis and Amy Gill	None	19:18	19:15	21:18	14°C, 0 wind, 6/8, 0 rain	12°C, 1 N wind, 4/8, 0 rain	SJ 01106 74256	19:46	P.Pyg	1	Flew straight over surveyor heads. Flying east foraging over hedge.
									SJ 01076 73992	19:53	P.Pyg	1	Flying north.
									SJ 00907 74071	19:57	P.Pyg	1	Foraging around oak.

SJ 00766 74096	20:01	P.Pyg	1	Foraging overhead.
SJ 00763 73810	20:16	P.Pyg	1	Flying east.
SJ 00641 73731	20:21	P.Pyg	1	Foraging along hedge.
SJ 00641 73731	20:24	P.Pyg	1	Foraging around oak.
SJ 00641 73731	21:01	P.Pyg	1	Foraging overhead.

Date	Transect Number	Surveyors	Constraints	Sunset/Sunrise time	Start time	End time	Start weather	End weather	Location	Time	Bat species	Number seen at one time	Observations
07/10/21	1	Shannon Davies and Amy Gill	None	18:36	18:36	20:36	7/8 cloud, 18°C, 0 rain, 2/12 N wind	16°C, 2 wind, 0 rain, 5/8 cloud cover	SJ 03598 80770	19:14	P.pip	1	Flying over hedge - foraging. H&S
									SJ 03450 80630	19:17	P.pyg	2	Foraging around willow trees. H&S.
									SJ 03107 79857	19:33	P.pip	1	Quick pass near oak. Heard and seen.
									SJ 03107 79857	19:44	P.pip, P.pyg	2	Foraging overhead. H&S
									SJ 03165 79590	19:49	P.pyg	1	Foraging around trees near small wood. H&S
									SJ 02933 79796	19:54	P.pyg	2	Foraging in tree canopy. H&S
									SJ 02771 79864	20:02	P.pip	1	Foraging by wood. Heard not seen
									SJ 02849 79320	20:15	P.pip	2	Flying in treeline + social calls. H&S
									SJ 02688 79253	20:30	P.pip	1	HNS, quick pass
13/10/21	2	Amy Gill and Guy Ostler	None	18:23	18:23	20:23	13°C, 8/8 cloud, 0 rain, 1 N wind	12°C, 6/8 cloud, 0 rain, 0 wind	SJ 02079 78099	19:17	P.pip	0	HNS
									SJ 01843 78016	19:25	N.noc	0	Possibly noise, HNS
									SJ 01598 78265	19:33	P.pyg	0	Heard not seen, 1 pass.
									SJ 01501 78360	19:35	P.pip, P.pyg	1	Flew overhead, flying east. S.pip HNS
									SJ 01466 76065	19:43	Pip sp.	0	HNS
14/10/21	3	Amy Gill and Guy Ostler	None	18:21	18:21	20:43	3/8 cloud, 0 rain, 16°C, 1 wind S	7/8 cloud, 0 rain, 0 wind, 15°C	SJ 01541 75726	19:55	P.pyg	1	Heard and seen, quick pass.
									SJ 01443 75197	20:08	P.pyg, P.pip	2	Foraging around woodland, multiple passes.
									SJ 01443 75197	20:17	P.pyg	1	Foraging overhead, multiple passes.
									SJ 01647 75215	20:25	P.pyg	0	HNS
	4			18:05	18:05	20:15			SJ 00924 74727	18:35	P.pyg	1	Foraging under oak tree/ up and down hedgerow.

21/10/2
1

Emma
Clarke
and Amy
Gill

Route
changed -
cows

9°C, w
6mph,
6/8
cloud,
0 rain

8°C,
WSW
10mph,
7/8
cloud,
light
shower
18:30
lasting
5min,
otherwise
dry.

SJ 00846 74653	18:39	P.pyg	1	Flying north along wall/woodland edge.
	18:41	P.pyg	1	Seen flying along woodland edge - foraging.
	18:42	P.pyg	1	Foraging, continued activity as above.
	18:47	P.pyg	2	Foraging along woodland edge.
	19:17	P.pyg	1	HNS - foraging.
SJ 00779 74356				
SJ 00719 74032				
SJ 00621 73788	19:36	P.pyg	1	HNS- foraging.

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