



Tata Steel UK Ltd

Electric Arc Furnace

Bat Survey Report

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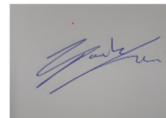
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EXECUTIVE SUMMARY

This report presents the results of a suite of bat surveys including preliminary roost assessments (Structures and Trees), aerial inspections, emergence surveys, transect surveys and activity (static detector) surveys. The surveys were carried out over the 2022 survey season with some additional surveys completed in 2023/2024. This report has been produced to support the Electric Arc Furnace. The survey was based on the 2021/ 2022 survey boundary (the survey boundary for the previous iteration of the project) and red line boundary plan of the development site (the 'site') provided by the client.

The purpose of these surveys was to identify how and to what extent roosting and foraging bat species utilise the site.

The site is located within the Tata Steelworks at Port Talbot South Wales. The site is industrial with the majority of the site comprising buildings and hardstanding. The habitats on site comprise neutral grassland, coastal floodplain grazing marsh, broadleaved plantation woodland, open water and reedbeds, scrub and ephemeral short perennial vegetation. Due to the industrial history of the site this mosaic of habitats would be classed as Open Mosaic Habitat on Previously Developed Land, a Priority habitat in Wales. There are a number of channels throughout grassland within the southern extent of the site, there is one lagoon associated with channels and one large lake associated with the steelworks, located at the northern extent of the site. Habitat is considered to be species – rich.

Roosting bats

Non-invasive surveys are carried out by looking for signs in and around buildings and trees which could indicate that bats are present, and for potential roosting features. Accordingly, a scale of roost potential is provided by the Bat Conservation Trust Guidelines 3rd and 4th Edition. The Guidelines presents four levels of potential roost value (Negligible, Low, Moderate, High).

A total of three buildings with bat roost potential of Low or above, and which needed further survey work in the form of a bat roost emergence survey, were identified.

Two emergence and re-entry surveys were undertaken on the building with moderate suitability, and one survey each on the two low potential buildings.

No bats were seen to emerge from any buildings during surveys.

A total of 10 trees with bat roost potential which need further survey work in the form of a bat tree climbing assessment, were identified. Three high potential, four moderate potential, one low potential and two with negligible potential.

Climbing assessments were undertaken on all ten of the trees with three visits being undertaken on those with high potential and two visits on those with moderate. The low and negligible potential trees were only visited once.

No evidence of bat roosting activity was recorded in any of the trees during the climbing assessments.

Foraging/ commuting bats

Activity surveys were conducted using static detectors and transect surveys to record the bat species and levels of activity across the site. The surveys were designed following the Bat

Conservation Trust Guidelines 3rd and 4th Edition. Five static detectors were deployed in 2022 with an additional detector being deployed in 2023/2024.

The woodland between the lorry park and the railway lines to the east of the site recorded the highest levels of foraging and commuting activity during the transect surveys.

Up to nine species / groups of bat were recorded using the site. Common pipistrelle (*Pipistrellus pipistrellus*) was the most recorded bat across all surveys. Other species recorded include soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), Daubenton's (*Myotis daubentonii*), brown long-eared (*Plecotus auritus*), lesser horseshoe (*Rhinolophus hipposideros*), *Nyctalus* species and *Myotis* species.

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1.0 INTRODUCTION

1.1 Purpose of this report

- 1.1.1 The report presents the findings of a suite of bat surveys including preliminary roost assessments (structures and trees), aerial surveys (trees), emergence surveys (structures) and activity surveys. carried out on land at Tata Steelworks in Port Talbot, South Wales (central Grid Ref SS 77524 86021).
- 1.1.2 Surveys were commissioned to inform the planning process and Environmental Statement ecology chapter in respect to bats using the site. The surveys were undertaken to determine the potential for roosting bats at the site, identify if bats could be affected by the proposals and, if necessary, inform a mitigation strategy to reduce impacts to non-significant levels.
- 1.1.3 An initial survey area was used in 2021/ 2022, subsequently, adjustments were made to the proposed development and further surveys were completed in 2023/ 2024 within the red line boundary to ensure full coverage. The area termed 'the site' throughout this report is delineated on *Figure 1* by the red-line boundary and the 2021/ 2022 survey boundary.

1.2 Ecological context

- 1.2.1 A preliminary ecological appraisal (PEA), including a background data search (BDS) was completed by RSK (RSK, June 2024). Records of noctule bat (*Nyctalus noctule*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), Daubenton's bat (*Myotis daubentonii*) and whiskered bat (*Myotis mystacinus*) were received during the BDS, within 2 km of the site boundary. The nearest record was common pipistrelle located approximately 1 km north-east of the site.
- 1.2.2 The site features large areas of habitat suitable for foraging by a range of bat species. Specifically, the lagoon, channels and areas of grassland around the operational areas of the site, plus the coastal grazing marsh and woodland to the south of the site.
- 1.2.3 Figure 2 shows the location of buildings and trees.
- 1.2.4 The approximately 160 ha site is located to the south-east of the town of Port Talbot. The site is predominately industrial dominated by buildings and bare ground/ developed land. Open mosaic habitat is the most dominant habitat type comprising a mixture of scrub, grassland and ephemeral vegetation. There are a number of water channels throughout the site and one large lake associated with the steelworks, located at the northern extent of the site.
- 1.2.5 The site is immediately bordered to the north, east and west by Tata Steelworks with an access road and Margam Moors SSSI adjacent to the south of the site. The surrounding landscape is a mixture of woodland, hedgerows, waterbodies (reservoir), grassland and

residential properties within Margam. Swansea Bay (Bristol Channel) is located approximately 880m west of the site.

1.3 Development Proposals

- 1.3.1 The Proposed Development will require the demolition of existing buildings and structures, and the construction of a new EAF steel production facility. The Proposed Development also includes a scrap metal handling facility and associated scrap yards, slag processing facility, chemical and material storage structures, buildings, handling systems, electrical control rooms and power infrastructure, laboratories, offices and ancillary facilities, together with new and amended transport infrastructure, landscaping and associated development.

2.0 METHODOLOGY

2.1 Preliminary Bat Roost Assessment

- 2.1.1 The preliminary bat roost assessment was carried out on 14 January 2022 and 29 April 2024 by Alexandra Ellis (principal ecologist) and Kailey O'Brien (senior ecologist). Alexandra holds a bat survey licence (S086273/1) is a full member of the Chartered Institute of Ecologists and Environmental Management (CIEEM) and has over thirteen years' experience of undertaking bat work. Kailey has over four years' experience as an ecologist and is an associate member of the Chartered Institute of Ecologists and Environmental Management (CIEEM).
- 2.1.2 The surveys completed in 2022 followed Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition (Collins, 2016). The surveys completed in 2023 and 2024 followed Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th Edition (Collins, 2023).
- 2.1.3 Bat activity and emergence surveys were carried out by Alexandra Ellis, Kailey O'Brien, Elisabeth Brooks and Paul Parker.

2.2 Buildings

- 2.2.1 A total of twenty-four buildings were surveyed for features that may be used by roosting bats. Potential access points into the buildings were noted as well as crevices and voids in the external structure. This survey provided a rapid assessment of the buildings on which suggestions for further surveys or scheme design can be based.
- 2.2.2 The buildings were assessed according to the following factors that influence the likelihood of bats roosting.
- Surrounding habitat: whether there are potential flight-lines and foraging areas for bats nearby.
 - Construction detail: the type and construction of architectural features such as attics, soffit boxes, lead flashing and hanging tiles that could be used by roosting bats.
 - Building condition: whether disrepair has opened potential bat-access points (especially around roofs).
 - Potential bat-access points: whether there is flight and crawl access.
 - Potential roosting locations: description of all bat-accessible voids, cracks and crevices.
- 2.2.3 The buildings were then inspected for evidence of bats. The following building features were inspected externally and where possible internally for evidence of bats:
- roof slopes and the ridge;
 - wall, window and door surfaces;
 - window and door frames;
 - wall bases;

- wall ledges and wall tops;
- roof beams;
- cracks, crevices and sheltered voids;
- the floors and stored items; and
- external features such as soffits and lead flashing.

2.2.4 Evidence of roosting bats includes droppings, urine stains, staining from fur-oils, scratch marks, wear marks, feeding remains, dead bats, odour, squeaking and chattering, and in some cases the absence of cobwebs. Bat droppings can prove beyond doubt that bats have used a building and can help to identify roosting locations because piles often accumulate beneath roosting sites or entrance points.

2.2.5 Descriptions of the buildings were recorded onto specially designed survey sheets, and digital photographs were taken. The criteria shown in Table 1 were used to categorise the building according to its potential for roosting bats.

Table 1: Classification criteria for bat roosting potential of buildings, built structures and trees – adapted from Collins, 2016.

Category	Description
Negligible potential	Negligible habitat features on the site likely to be used by roosting bats.
Low potential	A structure / tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats.
Moderate potential	A structure / tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, condition and surrounding habitat but unlikely for a roost of high conservation status.
High potential	A structure / tree with one or more potential roost sites that are obviously suitable for 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.
Confirmed roost	Bats or evidence of bats recorded within the building / tree during the initial inspection surveys or during dusk / dawn surveys. A confirmed record (supplied by records centre/local bat group) would also apply.

2.3 Trees

2.3.1 An initial inspection of each tree for their potential to support roosting bats was undertaken. This involved the inspection of trees from ground-level using binoculars and a torch to identify any features which were considered to have potential as a bat roost and for any evidence of bats such as scratch marks, oil stains and droppings.

2.3.2 This included features such as:

- holes (e.g. woodpecker holes);
- cracks and splits (in trunks and limbs);
- cavities (e.g. formed by occluded stems or limbs);
- peeling bark;
- crevices formed by epicormic growth; and
- deadwood.

2.3.3 Trees and features were then categorised in accordance with Table 1 above.

2.4 Activity Surveys

2.4.1 The 2021/ 2022 survey boundary was assessed for its suitability for foraging and commuting bats during the PRA, and it was determined that it has a moderate suitability. This requires one survey visit per month, April to October. The additional areas within the red line boundary were determined to have low suitability and it was determined that due to the low activity recorded on the statics, no walkover survey was required.

2.4.2 Transect surveys commenced at sunset, lasted two hours and covered all suitable habitats for foraging and/or commuting bats, with a focus on boundary features.

2.4.3 Transects included walked sections, continuously recording any signs of bat activity, and stopping-points at pre-determined locations, where activity was recorded for five minutes before continuing along the transect. Monitoring locations were chosen to include areas of high-quality habitat where bats were likely to be encountered if present.

2.4.4 The transect route is shown in Figures 4 - 9. On each visit, the set transect route was walked in suitable weather (above 10°C, with little or no rain and no strong winds), using a Batlogger M2 handheld detector. The direction of each transect altered each month to sample different parts of the transect at different times after sunset. Bat passes were marked on a map so that statistics on passes and numbers could later be calculated.

2.4.5 Levels of bat activity were quantified by the number of bat passes recorded during each walking section or monitoring stop. A single pass by a bat was defined by a gap of one second or more between the end and beginning of the next bat call. Species were identified either in the field or through analysis of recordings.

2.4.6 Tables detailing the dates and survey times of the activity surveys and also weather conditions at the beginning of the survey are provided in Appendix A.

2.5 Static Monitoring

- 2.5.1 The 2021/ 2022 survey boundary was assessed for its suitability for foraging and commuting bats during the PRA, and it was determined that it has a moderate suitability to support foraging bats. This requires a minimum survey effort of two locations (five were chosen) of data to be collected on five consecutive nights per month, April to October (BCT, 2016). The additional area within the red line boundary was determined to offer low suitability. This required survey effort of data at one location, to be collected on five consecutive nights per season, Spring, Summer and Autumn (BCT, 2023).
- 2.5.2 Static monitoring surveys commenced at 30 minutes prior to sunset and lasted until 30 minutes after sunrise for each night of deployment. The locations covered all suitable habitats for foraging and/or commuting bats, with a focus on boundary features.
- 2.5.3 The detector locations are shown on Figure 2, Wildlife Acoustics SM4 detectors were used for all deployments.
- 2.5.4 Levels of bat activity were quantified by the number of bat passes recorded during each night. A single pass by a bat was defined by a gap of one second or more between the end and beginning of the next bat call. Species were identified through analysis of recordings.
- 2.5.5 Appendix A details the dates of the static detector deployments.

2.6 Emergence and Re-entry Surveys

- 2.6.1 Dusk emergence and dawn re-entry surveys were carried out to determine the presence or likely absence of roosting bats according to their category of suitability, as described in Table 2.

Table 2: Categorisation of the suitability of buildings or trees for roosting bats (Collins, 2016).

Category	Description
Negligible suitability	Negligible habitat features on site likely to be used by roosting bats.
Low suitability	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>

Category	Description
Moderate suitability	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High suitability	A structure or tree with one or more potential roost sites that are obviously suitable for used 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.
Confirmed roost	Bats or evidence of bats recorded during the initial inspection surveys or during dusk/dawn surveys. A confirmed record (supplied by records centre/local bat group) would also apply.

- 2.6.2 Buildings identified as having low and moderate potential to support roosting bats are to be affected by the proposed development were subject to one or two surveys respectively. Buildings 2 and 5 have low potential and building 10 had moderate potential.
- 2.6.3 Surveyors were positioned in locations with a good view of potential roost access-points identified during the PRA (Figure 2). The dusk emergence surveys started 15 minutes before sunset and continued for 90 minutes after. The dawn re-entry surveys started 90 minutes before sunrise and continued for 15 minutes after.
- 2.6.4 Electronic equipment capable of detecting and recording the ultrasonic echolocation calls of bats in flight was used to record bat activity (Elekon Batlogger M or Batlogger M2 bat detectors). Species were identified from the characteristics of their calls (including peak frequency, minimum and maximum frequency, call duration and inter-pulse interval).
- 2.6.5 The surveys were carried out in weather conditions suitable for bats to be active in i.e. no rain, no strong wind, air temperatures 10°C or above. See *Appendix A* for survey weather.

2.7 Analysis of Sound Recordings

- 2.7.1 All sound recordings were stored onto memory cards and analysed using BatExplorer and Kaleidoscope software. All recordings were analysed using a number of processes:
- Initially all recordings were subject to batch-scrubbing to eliminate noise files, with all identified noise files retained for later scrutiny for any bat calls that may have missed by the software.

- All calls not scrubbed as noise were subject to an individual assessment.
- Call parameters such as call shape, inter-pulse interval, call length, frequency of maximum energy (peak frequency), start and end frequency of the calls were inspected against the identification assigned by BatExplorer and an identification made/confirmed where possible.
- Echolocation calls were identified down to species or genus levels depending on the type of bats encountered (i.e., it is not often possible to reliably identify species belonging to the genus *Myotis*, *Plecotus* and *Nyctalus* species), and the quality of the recording.

2.7.2 The analysis software produced a single file for each pass made by an echolocating bat. The level of bat activity was quantified by the number of files (passes) recorded for each recorded species for each night and monitoring period.

2.8 Validity of Data

2.8.1 Data collected is usually valid for two years following the field survey, to provide evidence that is material to the planning determination. Should consent not be awarded within two years of the completed surveys, then it may be necessary to confirm that there have not been material changes in the existing foraging and roosting bat baseline before planning is determined.

2.9 Survey Constraints

- 2.9.1 Internal access to buildings was not always possible. A full external assessment was carried out for all buildings and since all external features were examined thoroughly, lack of internal access is not considered to be a significant constraint.
- 2.9.2 During transect surveys, bats and their direction of flight were easiest to observe during the period just after sunset when light levels were still high. As the light faded, visual observation often became impossible and 'heard not seen' records were made. When this occurred, only the locations of the bat pass could be recorded and not the direction of flight.
- 2.9.3 Bat Activity and static monitoring surveys were not undertaken in October 2021 as the weather was not appropriate for surveys to take place. Given the survey effort prior to this the lack of data for October is not considered a significant limitation.
- 2.9.4 While presence/absence of different species in the genera *Myotis*, *Plecotus* and *Nyctalus* is now becoming easier to ascertain where high-quality calls have been collected, there are always calls where certainty is not possible and therefore levels of bat activity by species (rather than genus) must be interpreted with a degree of caution.

3.0 RESULTS

3.1 Preliminary Bat Roost Assessment - Buildings

- 3.1.1 There were twenty-four buildings on the site, all of which were inspected externally with 11 of them also being inspected internally. The results of the survey are summarised in Table 3, including the bat roosting potential and main evidence found. Twenty-one of the buildings were assessed as offering negligible potential to support roosting bats, two as offering low potential and one as offering moderate potential.

Table 3: Results of the preliminary bat roost assessment of buildings

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B1 (Photo 1)	<p>Derelict Buildings within Southern fields</p> <p>Building ruins comprising of partially demolished walls.</p> <p>Internal space completely open to the elements</p>	Gaps in walls but structures are very exposed and unsuitable for roosting due to temperate fluctuations	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of roof and exposed nature of walls.</p> <p>No further surveys are required.</p>
B2 (Photo 2)	<p>Longlands Lane Structure</p> <p>Brick construction with flat bitumen roof supporting a metal frame.</p> <p>Internal space very damp and open to roof.</p>	Open doorway and window providing access to internal space - unsuitable for roosting due to temperature fluctuations.	<p>No evidence of roosting bats was found.</p> <p>Low potential for roosting bats due to access to potential roosting spaces.</p> <p>Further surveys are required.</p>
B3 (Photo 3)	<p>HAA Coal Rail Unloading Station</p> <p>Corrugated metal construction covering railway bunker drop off point, associated conveyor belt and hopper tower.</p> <p>Internal spaces open to apex and covered in layers of coal dust.</p>	Large open doorways - unsuitable for roosting due to temperature fluctuations.	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of roosting spaces and exposed nature of the building.</p> <p>No Further surveys are required.</p>

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B4 (Photo 4)	Portacabin No access to the internal space	None	No evidence of roosting bats was found. Negligible potential for roosting bats due to lack of access and roosting spaces. No further surveys are required.
B5 (Photo 5)	Abbey Coke Ovens Substation Brick construction with cavity walls and flat concrete roof Internal space comprised of several spaces, open to the roof. Basement level.	Missing bricks and gaps leading to wall cavity Broken concrete lintel No access to internal spaces	No evidence of roosting bats was found. Low potential for roosting bats due to access to suitable roosting spaces. Further surveys are required.
B6 (Photo 6)	Scrapyard Portacabins No access to the internal space	Very bad state of repair Broken windows and missing areas of wall Surrounded by large piles of rubble	No evidence of roosting bats was found. Negligible potential for roosting bats due to poor state of repair. No further surveys are required.
B7 (Photo 7)	Storage Shed within Scrapyard Corrugated metal single storey warehouse with PVC skylights Large open internal space	No access points.	No evidence of roosting bats was found. Negligible potential for roosting bats due to lack of access and roosting spaces. No further surveys are required.

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B8 (Photo 8)	<p>Abby By-products Substation</p> <p>A large brick substation with flat bitumen roof. Concrete lintels Large open internal space with large machinery</p>	Some gaps within brickwork but these are very low to the ground.	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of access and suitable roosting spaces.</p> <p>No further surveys are required.</p>
B9 (Photo 9)	<p>Small LV Room and Lighting Tower</p> <p>Wooden pre-fab with flat roof. No internal inspection access</p>	<p>Superficial gaps beneath wooden fascias</p> <p>Large hole in roof - unsuitable for roosting due to temperature fluctuations.</p> <p>Good flight path to green corridor</p>	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B10 (Photo 10)	<p>Scrap Stockyard Substation</p> <p>Brick construction with flat bitumen roof No internal inspection access</p>	<p>Gaps beneath concrete fascias</p> <p>Open doorway on rooftop structure</p> <p>Good flight path to green corridor</p>	<p>No evidence of roosting bats was found.</p> <p>Moderate potential for roosting bats due to access and suitable roosting spaces.</p> <p>Further surveys are required.</p>

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B11 (Photo 11)	<p>Rail Control Tower</p> <p>Brick and glass construction with one small two storey section. Flat bitumen roof No internal inspection access.</p>	<p>Very bad state of repair Broken windows and missing areas of wall Gaps in walls but structures are very exposed and unsuitable for roosting due to temperate fluctuations</p>	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B12 (Photo 12)	<p>Kress Crossing Control Building</p> <p>Brick construction with corrugated metal add-on. Flat bitumen roof. Large windows with wooden frames. No internal inspection access.</p>	<p>Gaps in walls but structure is very exposed and unsuitable for roosting due to temperate fluctuations and lack of roosting opportunities.</p>	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B13 (Photo 13)	<p>Scrap Handling Facility</p> <p>Corrugated metal canopy on metal supports</p>	<p>None</p>	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B14 (Photo 14)	<p>Works Reservoir Pump House</p> <p>Brick construction with flat bitumen roof. Partial roof collapse with tarpaulin and scaffolding over the area.</p> <p>All windows and doors boarded up</p> <p>No access to interior</p>	Gaps in walls but structures are very exposed and unsuitable for roosting due to temperate fluctuations	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces.</p> <p>No further surveys are required.</p>
B15 (Photo 15)	<p>Harsco Bailing Plant</p> <p>Breezeblock construction with flat bitumen roof. Additional associated structures brick with corrugated metal roofing</p> <p>Metal louvered windows and metal doorways.</p> <p>Interior containing large generator and associated controls. Very loud and dusty</p>	Open doorway and windows providing access to internal space - unsuitable for roosting due to temperature fluctuations and noise levels.	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B16 (Photo 16)	<p>Harsco Plant Substation</p> <p>Brick construction with no roof. Wooden doors and windows with some broken panes</p> <p>No access to the interior</p>	Gaps in walls and windows but structure is very exposed, has no roof and unsuitable for roosting due to temperate fluctuations	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B17 (Photo 17)	<p>BOS Plant Engineering Offices</p> <p>Two storey pre-fab building with flat corrugated roof. Good condition Interior divided into office spaces all in current use</p>	None	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces.</p> <p>No further surveys are required.</p>
B18 (Photo 18)	<p>BOS Plant Maintenance Workshop</p> <p>Breezeblock construction with brick outer skin on lower half and corrugated metal on upper. Flat bitumen roof Interior is split into one large open space with a couple of small offices to one side. Doors remain open</p>	<p>Gaps providing access to space between breezeblock and outer skin of the walls. However, building in constant use and well-lit both inside and outside</p>	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B19 (Photo 19)	<p>Penthouse</p> <p>Corrugated metal 'box' on metal supports. Good condition No access to interior</p>	None	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces.</p> <p>No further surveys are required.</p>

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B20 (Photo 20)	Cooling Tower Corrugated metal tower in good condition No access to interior	None	No evidence of roosting bats was found. Negligible potential for roosting bats due to lack of suitable access and roosting spaces. No further surveys are required.
B21 (Photo 21)	Treated Water Pump House Half height brick walls with corrugated metal for the remainder. Flat metal roof. Interior open to the roof with machinery. Very noisy and dusty	Open doorway and windows providing access to internal space - unsuitable for roosting due to temperature fluctuations and noise levels.	No evidence of roosting bats was found. Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed No further surveys are required.
B22 (Photo 22)	Overspill Car Park Gas Holder Corrugated metal roof on metal supports and half height corrugated metal walls. A three-sided metal surround to the adjacent gas holder	None	No evidence of roosting bats was found. Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed No further surveys are required.

Building Reference	External Description	Potential Bat Roosting Features	Bat Roost Potential
B23 (Photo 23)	<p>Feeder Hopper (HAA)</p> <p>Large metal hopper on metal support structure adjacent to large earth bund</p>	None	<p>No evidence of roosting bats was found</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>
B24 (Photo 24)	<p>Compressor House</p> <p>Breezeblock construction with corrugated metal outer skin. Flat bitumen roof</p> <p>Interior is split into one large open space with a couple of small offices to one side. Doors remain open</p>	Open doorway and windows providing access to internal space - unsuitable for roosting due to temperature fluctuations and noise levels.	<p>No evidence of roosting bats was found.</p> <p>Negligible potential for roosting bats due to lack of suitable access and roosting spaces. Internal space highly exposed</p> <p>No further surveys are required.</p>

3.2 Preliminary Roost Assessment - Trees

- 3.2.1 There are scattered trees within the site and small woodland areas primarily to the south of the site.
- 3.2.2 The results of the ground level tree survey are summarised in Table 4. Three were assessed as offering high potential, four as offering moderate potential, one offering low potential and two offering negligible potential. These trees are shown on Figure 2.

Table 4: Results of the preliminary bat roost assessment of trees

Tree Reference	Species	Descriptions and Potential Roosting Features	Bat Roost Potential
AT1	<i>Poplar Sp.</i>	<p>Tag: 4194 Leaning, ivy covered tree within woodland block, close to western edge immediately east of silver shed on lorry yard.</p> <p>PRF1: Moderate</p> <p>Hazard beam; 5m; south; 80cm long crack extending through full width (15cm) of stem; 3cm wide cavity in the middle and narrowing towards top and bottom of cavity; cavity extends 5cm beyond opening at top and bottom.</p>	Moderate – Features should be checked before any works are performed.
AT2	<i>Poplar Sp.</i>	<p>Tag: 4187 Leaning with curved stem, on edge of woodland, immediately south of boulders and barrier across Heol Caer-Bont east of lorry park.</p> <p>PRF1: Moderate</p> <p>Wound; 0.5-1.5m; east; 1m long vertical crack in curving main stem; opening is 1.8cm wide; cavity extends down 45cm, up 15cm with 5cm diameter</p> <p>PRF2: High</p> <p>Woodpecker hole; 2.5m; 5cm diameter Wp hole on underside of curved main stem leading into hollow section; 45cm down; 10cm back; 0cm up</p>	High – Features should be checked before any works are performed.
AT3	<i>Poplar Sp.</i>	<p>Tag: 4186 Small tree with horizontal main stem located 1m west of AT2.</p> <p>PRF1: Moderate</p> <p>Knot hole; 1m; west; 6cm diameter hole leading into 5cm diameter hollow section of horizontal stem; extends 35cm down, 10cm up</p>	Moderate – Features should be checked before any works are performed.
AT4a	<i>Poplar Sp.</i>	<p>Tag: 4188; Large tree with curved main stem located close to edge of reedbed.</p>	Negligible - Features should be checked

Tree Reference	Species	Descriptions and Potential Roosting Features	Bat Roost Potential
		PRF1: Negligible Wound; 4.5m; south; wound on east pointing horizontal limb; cavity is shallow and unsuitable for roosting bats	before any works are performed.
AT4b	<i>Poplar Sp.</i>	Tag 4189; Large tree with vertical main stem that splits into two major limbs; adjacent to AT4a. PRF1: Negligible Knot hole; 6m; southeast; 6cm diameter hole on southern main stem leading to shallow cavity unsuitable for roosting bats. PRF2: Negligible knot hole; 10m; northeast; 5cm diameter hole on northern main stem leading to shallow cavity unsuitable for roosting bats	Negligible - Features should be checked before any works are performed.
AT5	<i>Poplar Sp.</i>	Tag 4192; tall single stem tree with lower part of main stem curving eastward and then bending to vertical. PRF1: Moderate Tear out; 4m; east; moderate sized (10cmx5cmx5cm) open cavity at base of tear out, with narrow fissure like cavities within remaining deadwood at top of tear out PRF2: Moderate woodpecker hole; 9m; north; 8cm diameter hole in vertical section of dead limb close to large union, back 10cm, down 5cm.	Moderate – Features should be checked before any works are performed.
AT6	<i>Poplar Sp.</i>	Tag: 4190; large, spreading single stem tree. PRF1: High	High – Features should be checked

Tree Reference	Species	Descriptions and Potential Roosting Features	Bat Roost Potential
		<p>Woodpecker hole; 8m; north & south; x2 WP holes (6cm diameter openings) on large east pointing limb with 90° bend, holes both lead into a hollow section 65cm long with 5cm diameter</p> <p>PRF2: Moderate.</p> <p>Woodpecker hole; 9m; north & south; Multiple woodpecker holes leading into hollow vertical broken dead limb with open top; light inside due to open top and multiple openings.</p>	before any works are performed.
AT7	<i>Poplar Sp.</i>	<p>Tag 4191; Tall twin stem, with eastern stem broken at 4m high.</p> <p>PRF1: High</p> <p>Woodpecker holes; 2-3m; east 2m: hole with 8cm diameter leading to large cavity: 15cm back, 5cm up, 20cm down; 3m: hole with 5cm diameter extending 15cm back, 0cm up or down. Other wp holes and cavity at top of broken stem have negligible suitability for roosting bats.</p> <p>PRF2: Moderate</p> <p>Knot hole; 10m; east; hole with 3cm diameter entrance and deadwood present extends back 12cm; up 4cm; down 0cm</p>	High – Features should be checked before any works are performed.
AT8	<i>Oak</i>	<p>Tag: 4193; medium size twin stem oak in woodland on edge of small ditch, where 2 ditches meet.</p> <p>PRF1: Moderate</p> <p>Lifted bark; 1.5m; east. Cavity beneath bark plates on main stem 50cm x 10cm; height 2cm</p>	Moderate – Features should be checked before any works are performed.

Tree Reference	Species	Descriptions and Potential Roosting Features	Bat Roost Potential
AT9	<i>Willow Sp.</i>	<p>No Tag; Short, leaning multi-stem tree with numerous superficial cavities, accessed through gateway over Mother Ditch</p> <p>PRF1: Low</p> <p>Wound; 1.5m; west. Medium size wound with upward facing opening on leaning main stem, 4cm diameter entrance, extends 10cm upward tapering from 4cm diameter to 2cm.</p>	Low – Features should be checked before any works are performed.

3.3 Foraging and Commuting

- 3.3.1 The site provides a moderate suitability for commuting and foraging. Within the site there are several waterbodies, two areas of woodland and an area of grazing pasture that provide commuting routes and foraging areas. The areas that appear more suitable for bats are primarily towards the southern boundaries of the site.

3.4 Activity Surveys – Transect Results

- 3.4.1 Table 5 details the total number of bat passes recorded during the transect surveys. The location and type of bat recorded is shown on *Figures 4 - 9* were recorded during these surveys. At least four species of bat (as determined by sound analysis) were recorded during the activity surveys. Bat activity was concentrated around the woodland between the lorry park and the main railway line, with some bat activity recorded across the southern fields.

Table 5: Total number of bat passes recorded during transect surveys

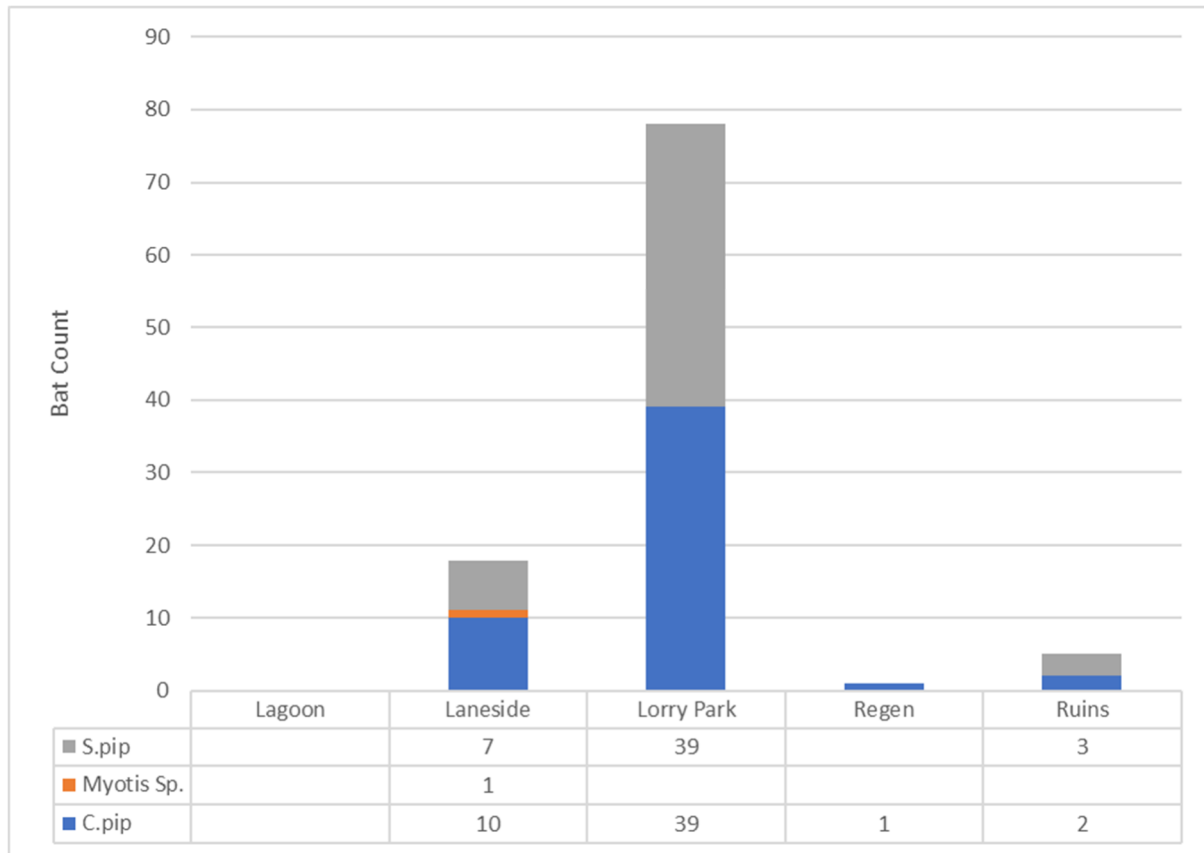
Species	September 2021	April 2022	May 2022	June 2022	July 2022	August 2022	Total
Common Pipistrelle	0	28	1	9	11	1	50
Soprano Pipistrelle	8	62	0	12	68	44	194
Noctule	0	0	0	1	0	0	1
Daubenton's	6	0	0	0	0	0	6
TOTAL	14	90	1	22	79	45	251

- 3.4.2 Over the course of the transects, soprano pipistrelle attributed 77%, common pipistrelle 20% and Daubenton's 2% of recorded activity (foraging and commuting) on the site. Noctule attributed < 1% of calls.

3.5 Activity Surveys – Static Results

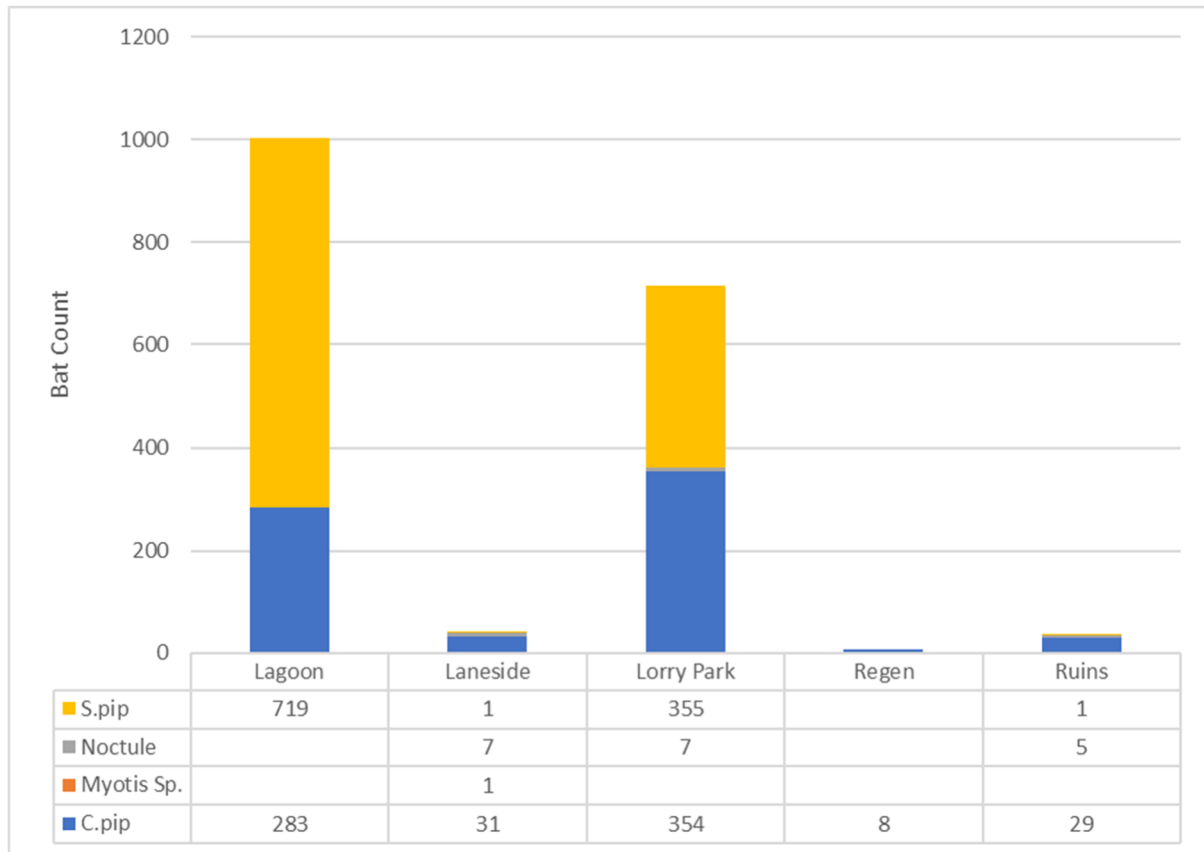
- 3.5.1 Graphs 1 - 8 show the number of bat passes per species for each deployment. Table 6 - 11 shows the total number of bat passes recorded by the static detectors for each location. The locations of the static detectors are shown on Figure 3.
- 3.5.2 Nine species/ groups of bat were recorded using the site. Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Noctule, Nyctalus Sp., Daubenton's, Myotis sp., Brown long-eared and Lesser Horseshoe.

Graph 1: April Static Detector Results



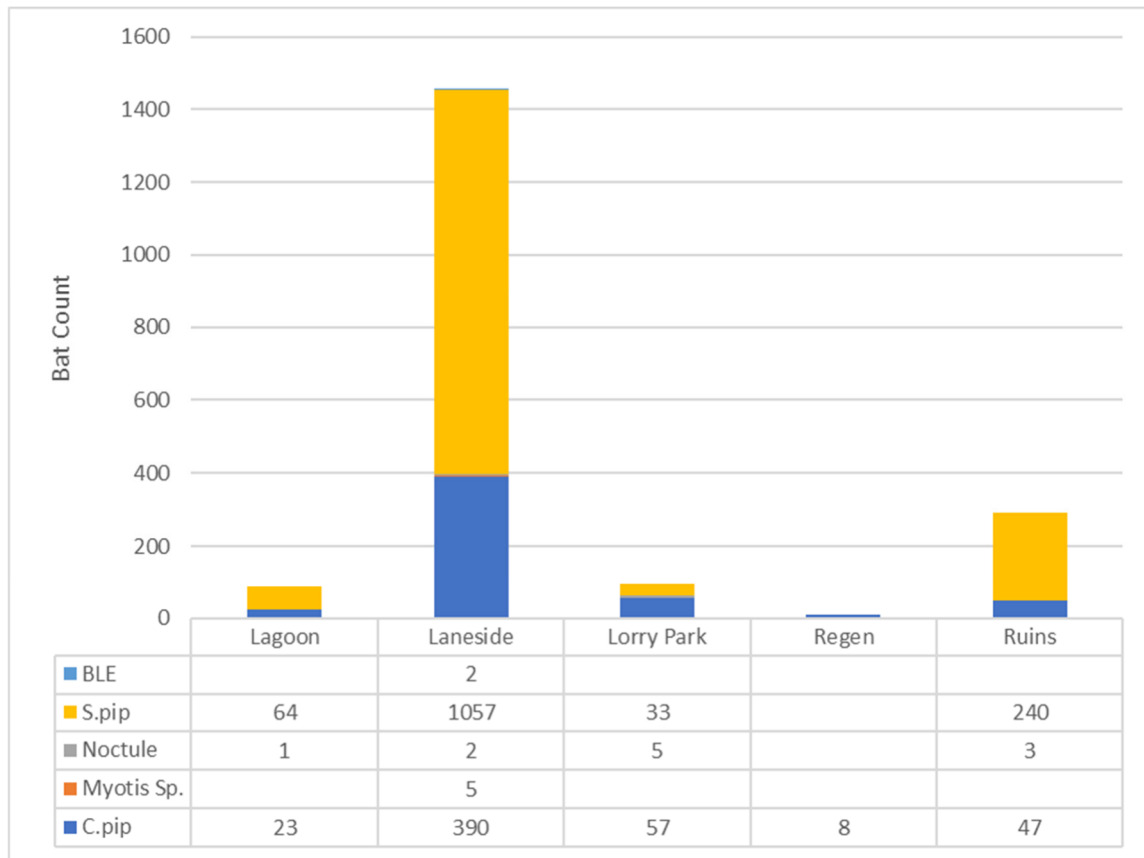
- 3.5.3 During the April deployment common pipistrelle attributed 51%, and soprano pipistrelle 48% of recorded activity (foraging and commuting) on the site. *Myotis* Sp. attributed < 1% of calls. The detector location with the most activity was the Lorry Park accounting for 77% of the total bat count. There were no bats recorded at the Lagoon location, and the most diverse location was Laneside with three species recorded (Soprano pipistrelle, Common pipistrelle and *Myotis* Sp.)

Graph 2: May Static Detector Results



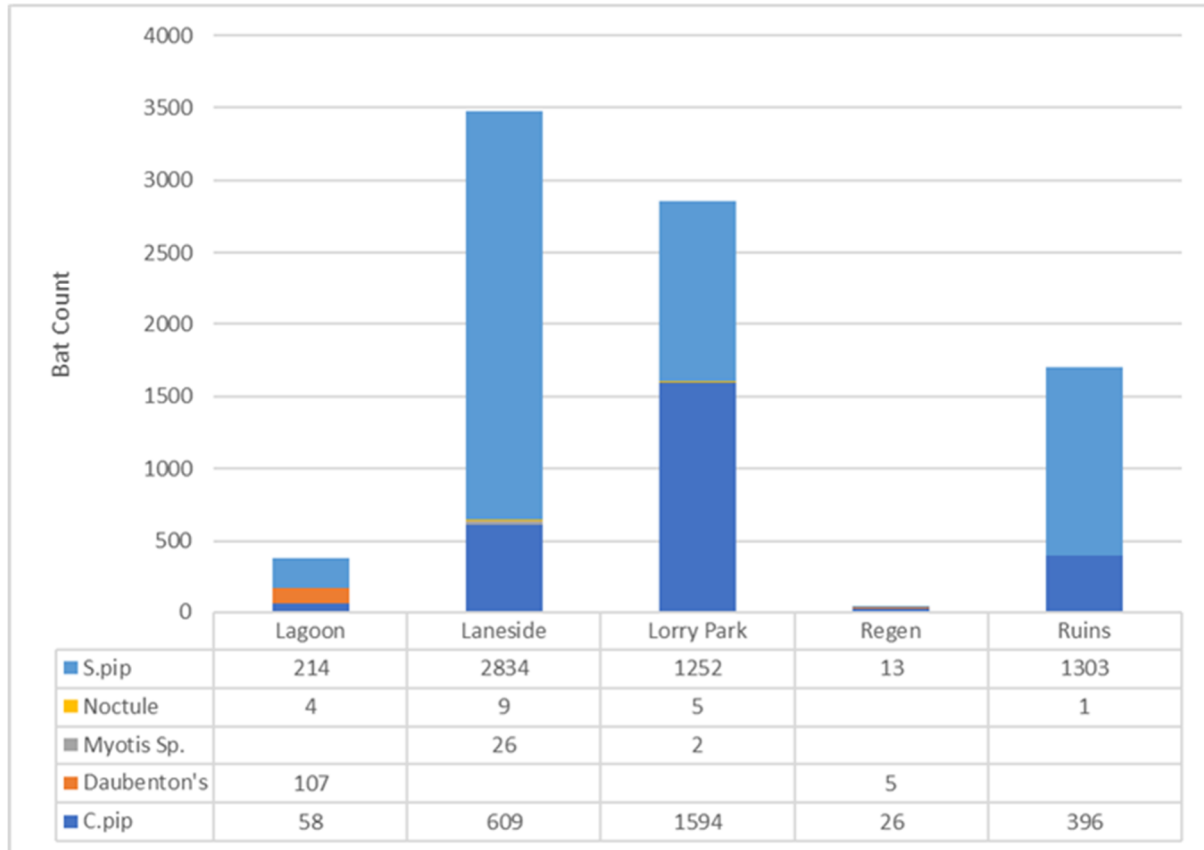
- 3.5.4 During the May deployment common pipistrelle attributed 39%, and soprano pipistrelle 60% of recorded activity (foraging and commuting) on the site. Noctule and *Myotis* Sp. attributed < 1% of calls. The detector location with the most activity was the Lagoon accounting for 56% of the total bat count, closely followed by Lorry Park accounting for 40%. The most diverse location was Laneside with four species recorded (Soprano pipistrelle, Common pipistrelle, Noctule and *Myotis* Sp.)

Graph 3: June Static Detector Results



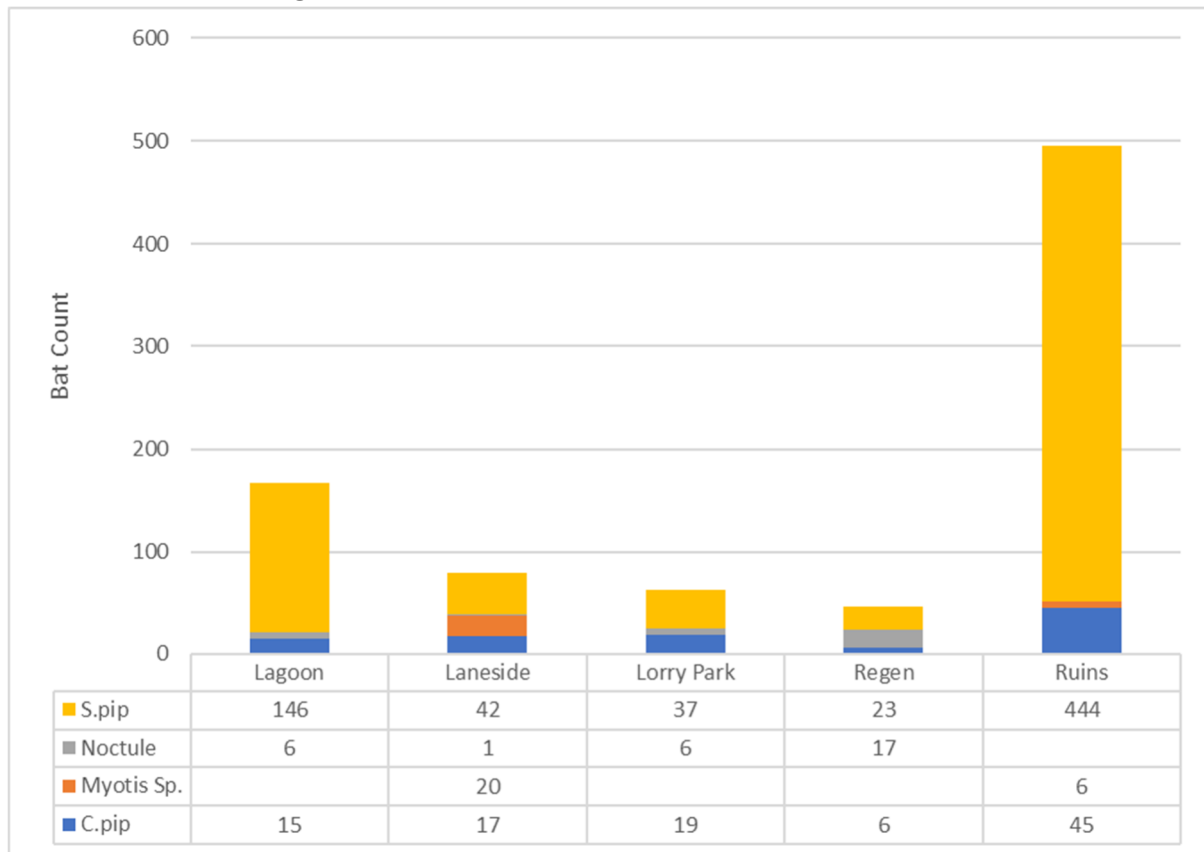
3.5.5 During the June deployment common pipistrelle attributed 27%, and soprano pipistrelle 72% of recorded activity (foraging and commuting) on the site. Noctule and *Myotis* Sp. attributed < 1% of calls. The detector location with the most activity was Laneside accounting for 75% of the total bat count. The most diverse location was Laneside with four species recorded (Soprano pipistrelle, Common pipistrelle, Noctule and *Myotis* Sp.)

Graph 4: July Static Detector Results



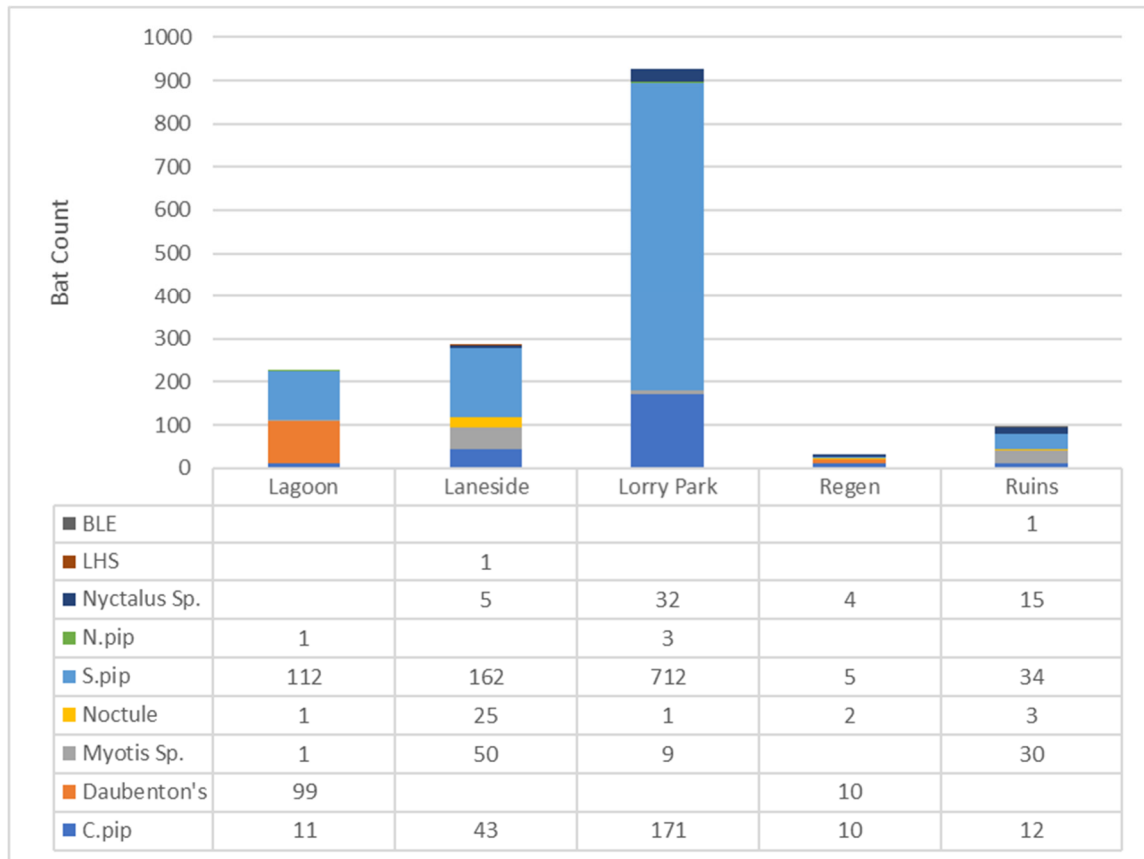
- 3.5.6 During the July deployment common pipistrelle attributed 32%, soprano pipistrelle 66% and Daubenton's 1% of recorded activity (foraging and commuting) on the site. Noctule and *Myotis* Sp. attributed < 1% of calls. The detector location with the most activity was the Laneside accounting for 41% of the total bat count closely followed by Lorry Park accounting for 34%. The most diverse locations were Lagoon, Laneside and Lorry Park with four species recorded a piece.

Graph 5: August Static Detector Results



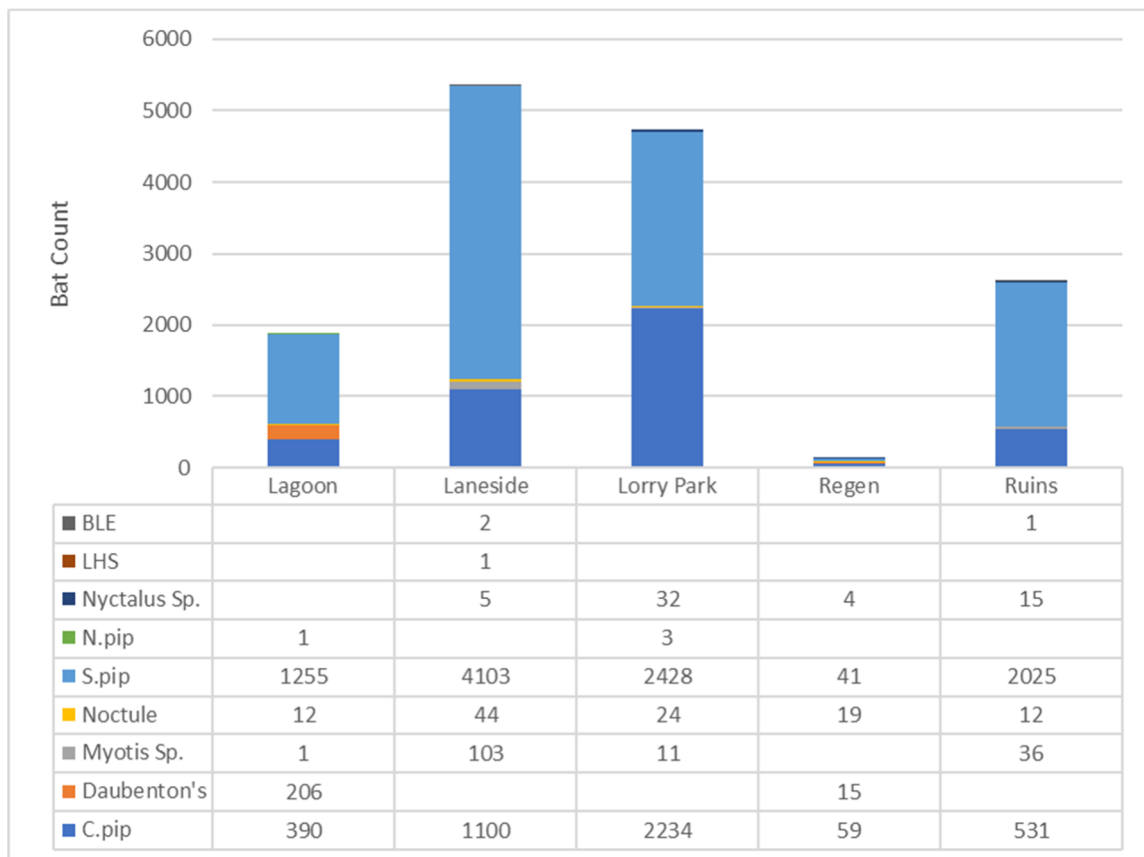
3.5.7 During the August deployment soprano pipistrelle attributed 81%, common pipistrelle 12%, noctule 4% and *Myotis* Sp. 3% of recorded activity (foraging and commuting) on the site. The detector location with the most activity was the Ruins accounting for 58% of the total bat count. The most diverse location was Laneside with four species recorded.

Graph 6: September Static Detector Results

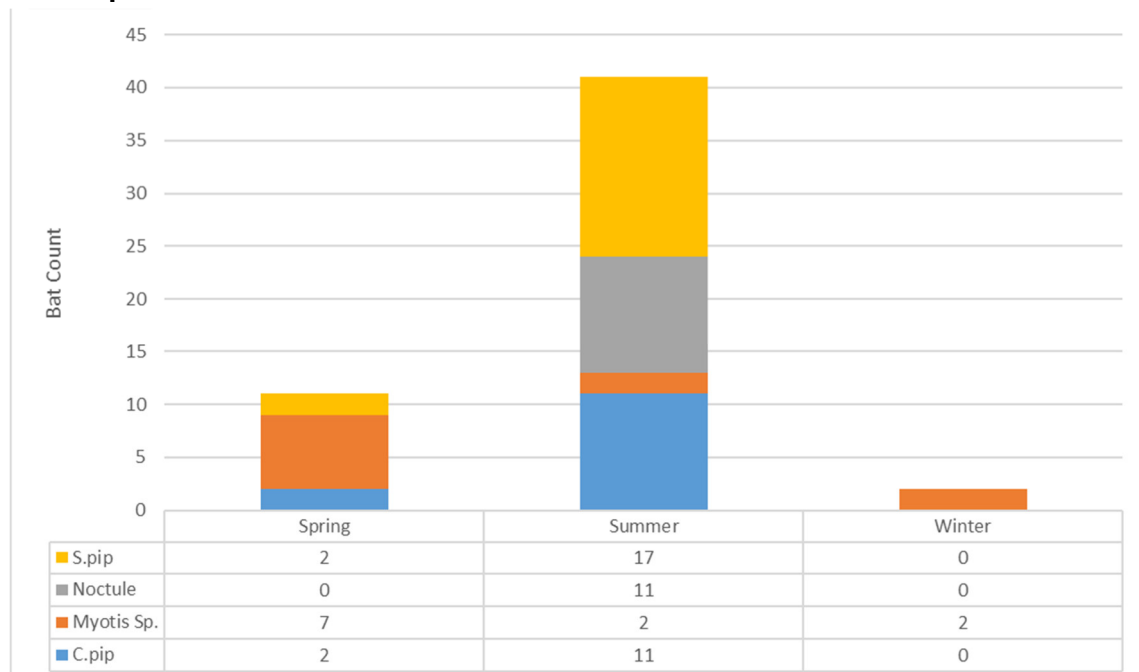


3.5.8 During the September deployment common pipistrelle attributed 15.8%, soprano pipistrelle 65.5%, Daubenton's 7%, Myotis sp. 5.8%, Nyctalus sp. 3.6% and Noctule 2% of recorded activity (foraging and commuting) on the site. Nathusius's' pipistrelle, lesser horseshoe and brown long-eared attributed < 1% of calls. The detector location with the most activity was the Lorry Park accounting for 59.3% of the total bat count. The most diverse locations were Lagoon, Laneside, Lorry Park and Ruins with six species recorded a piece.

Graph 7: Overall Static Detector Results



Graph 8: Works Reservoir Static Detector Results



- 3.5.10 During 2023 and 2024 an additional static was deployed three times at the work's reservoir (August / September 2023, September/ October 2023 and April/ May 2024).
- 3.5.11 There was significantly less activity recorded at this location when compared to the others. With the majority of the activity being from soprano pipistrelle.

Table 6: Total number of bat passes recorded by static detectors

Location	Month	Species						Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Myotis Spp. (% of the total)	Daubenton's (% of the total)	Nathusius Pipistrelle (% of the total)	
Lagoon	April	0	0	0	0	0	0	0
	May	283 (28.2)	719 (71.8)	0	0	0	0	1,002
	June	23 (26.1)	64 (72.7)	1 (1.1)	0	0	0	88
	July	58 (15.1)	214 (55.9)	4 (1)	0	107 (27.9)	0	383
	August	15 (9)	146 (87)	6 (4)	0	0	0	167
	September	11 (4.9)	112 (49.8)	1 (0.4)	1 (0.4)	99 (44)	1 (0.4)	225

3.5.12 Over the course of the deployment at the Lagoon location, soprano pipistrelle attributed 67%, common pipistrelle 21% and Daubenton's 11% of recorded activity (foraging and commuting) on the site. Noctule, Nathusius' pipistrelle and *Myotis* attributed < 1% of calls.

Table 7: Total number of bat passes recorded by static detectors

Location	Month	Species							Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Myotis Spp. (% of the total)	Nyctalus sp. (% of the total)	Brown Long-eared (% of the total)	Lesser Horseshoe (% of the total)	
Laneside	April	10 (55.6)	7 (38.9)	0	1 (5.6)	0	0	0	18
	May	31 (77.5)	1 (2.5)	7 (17.5)	1 (2.5)	0	0	0	40
	June	390 (26.8)	1,057 (72.6)	2 (0.12)	5 (0.3)	0	2 (0.12)	0	1,456
	July	609 (17.5)	2,834 (81.5)	9 (0.3)	26 (0.7)	0	0	0	3,478
	August	17 (21)	42 (53)	1 (1)	20 (25)	0	0	0	80
	September	43 (15)	162 (56.6)	25 (8.7)	50(17.5)	5 (1.7)	0	1 (0.3)	286

- 3.5.13 Over the course of the deployment at the Laneside location, soprano pipistrelle attributed 77%, common pipistrelle 21% and Myotis Spp. 2% of recorded activity (foraging and commuting) on the site. Notcule, Brown long-eared, Nyctalus sp. and Lesser Horseshoe attributed < 1% of calls.

Table 8: Total number of bat passes recorded by static detectors

Location	Month	Species						Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Myotis Spp. (% of the total)	Nathusius (% of the total)	Nyctalus (% of the total)	
Lorry Park	April	39 (50)	39 (50)	0	0	0	0	78
	May	354 (49)	355 (50)	7 (1)	0	0	0	716
	June	57 (60)	33 (34.7)	5 (5.3)	0	0	0	95
	July	1,594 (55.9)	1,252 (43.9)	5 (0.2)	2 (0.1)	0	0	2,853
	August	19 (30)	37 (60)	6 (10)	0	0	0	62
	September	171 (18.4)	712 (76.7)	1 (0.1)	9 (1)	3 (0.3)	32 (3.4)	928

- 3.5.14 Over the course of the deployment at the Lorry Park location, soprano pipistrelle attributed 51%, and common pipistrelle 47% of recorded activity (foraging and commuting) on the site. Noctule, Nathusius' pipistrelle, Nyctalus sp. and *Myotis* attributed < 1% of calls.

Table 9: Total number of bat passes recorded by static detectors

Location	Month	Species					Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Daubenton's (% of the total)	Nyctalus Sp.	
Regen	April	1 (100)	0	0	0	0	1
	May	8 (100)	0	0	0	0	8
	June	8 (100)	0	0	0	0	8
	July	26 (59.1)	13 (29.5)	0	5 (11.4)	0	44
	August	10 (18)	27 (47)	20 (35)	0	0	57
	September	10 (32.3)	5 (16.1)	2 (6.5)	10 (32.3)	4 (12.9)	31

3.5.15 Over the course of the deployment at the Regen location, common pipistrelle attributed 42%, soprano pipistrelle 30%, Noctule 15%, Daubenton's 10% and Nyctalus 3% of recorded activity (foraging and commuting) on the site.

Table 10: Total number of bat passes recorded by static detectors

Location	Month	Species						Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Myotis Spp. (% of the total)	Nyctalus Sp. (% of the total)	Brown Long-eared (% of the total)	
Ruins	April	2 (40)	3 (60)	0	0	0	0	5
	May	29 (82.9)	1 (2.8)	5 (14.3)	0	0	0	35
	June	47 (16.2)	240 (82.5)	3 (1)	0	0	1 (0.3)	291
	July	396 (23.3)	1,303 (76.6)	1 (0.1)	0	0	0	1,700
	August	45 (9)	444 (90)	0	6 (1)	0	0	495
	September	12 (12.6)	34 (35.8)	3 (3.2)	30 (31.6)	15 (15.8)	1 (1.1)	95

3.5.16 Over the course of the deployment at the Ruins location, soprano pipistrelle attributed 77%, common pipistrelle 20%, and Myotis Spp 1% of recorded activity (foraging and commuting) on the site. Noctule, Brown long-eared and Nyctalus Sp. attributed < 1% of calls.

Table 11: Total number of bat passes recorded by static detectors

Location	Month	Species				Total
		Common Pipistrelle (% of the total)	Soprano Pipistrelle (% of the total)	Noctule (% of the total)	Myotis Spp. (% of the total)	
Works Reservoir	August/ September	11 (27)	17 (41)	11 (27)	2 (5)	41
	September/ October	0	0	0	2 (100)	2
	April/ May	2 (18)	2 (18)	0	7 (64)	11

- 3.5.17 Over the course of the deployment at the Lagoon location, soprano pipistrelle attributed 35%, common pipistrelle 29%, Noctule 20% and Myotis spp. 20% of recorded activity (foraging and commuting) on the site.

Summary

- 3.5.18 Over the course of the static monitoring, soprano pipistrelle attributed 67%, common pipistrelle 29%, Myotis sp. 1% and Daubenton's 1.5% of recorded activity (foraging and commuting) on the site. Noctule, Nyctalus, Brown long-eared, Nathusius pipistrelle and lesser horseshoe attributed < 1% of calls.
- 3.5.19 The Laneside and Lorry Park locations had the highest percentage of activity (36% and 32% respectively), with the majority of the activity being recorded during June and July.

3.6 Emergence / Re-Entry Surveys

- 3.6.1 The results of the presence / absence surveys are detailed in Table 12, the buildings are shown on Figure 2.

Table 12: Number of bat passes recorded during emergence/re-entry surveys

Species	Building 2	Building 5	Building 10	
	04/05/2022	12/05/2022	17/05/2022	16/06/2022
Common Pipistrelle	0	1	1	0
Soprano Pipistrelle	1	0	0	0
Noctule	0	0	1	4

- 3.6.2 Three species of bat were recorded (as determined by sound analysis) during the emergence surveys.
- 3.6.3 Noctule was the most recorded bat during these surveys, attributing 63% of calls across the four surveys. All of the bats were observed flying above the buildings, passing through quickly; therefore, it is likely that they were commuting rather than foraging in close proximity.
- 3.6.4 No bats were recorded emerging from the buildings during the surveys. It is therefore likely assumed that none of these buildings are being used as roosts by bats.

3.7 Aerial (Climbing) Tree Inspection Results

- 3.7.1 The ground inspection identified ten trees which required further inspection using climbing inspection methods. The results of these inspections are detailed in Table 13 below.

Table 13: Aerial tree inspection results

Tree Reference	Species	PRF	Inspection			Bat Roost Potential
			1	2	3	
AT1	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity Dry, rough, clean, small number woodlice	No evidence of bat roosting activity Dry, rough, clean, small number woodlice	N/A	No evidence of bat roosting activity
AT2	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity Dry, rough, dusty,	No evidence of bat roosting activity Dry, rough, dusty,	No evidence of bat roosting activity Dry, rough, dusty,	No evidence of bat roosting activity
		2	No evidence of bat roosting activity Dry, rough, dusty,	No evidence of bat roosting activity Dry, rough, dusty,	No evidence of bat roosting activity Dry, rough, dusty,	
AT3	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity Dry, rodent nest of shredded reed present	No evidence of bat roosting activity Dry, rodent nest of shredded reed present	N/A	No evidence of bat roosting activity
AT4a	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity (unsuitable)	N/A	N/A	No evidence of bat roosting activity

Tree Reference	Species	PRF	Inspection			Bat Roost Potential
			1	2	3	
AT4b	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity (unsuitable)	N/A	N/A	No evidence of bat roosting activity
		2	No evidence of bat roosting activity (unsuitable)	N/A	N/A	
AT5	<i>Poplar Sp.</i>	1	No evidence of bat roosting activity dry, rough, bird droppings present (latrine) in open cavity at base of tear out	No evidence of bat roosting activity dry, rough, bird droppings present (latrine) in open cavity at base of tear out	N/A	No evidence of bat roosting activity
		2	No evidence of bat roosting activity dry, rough, bird droppings present (latrine)	No evidence of bat roosting activity dry, rough, bird droppings present (latrine)	N/A	
AT6	<i>Poplar Sp.</i>	1	No evidence of roosting bat activity Bird nest with eggs present in horizontal	No evidence of roosting bat activity Empty bird nest present in horizontal hollow	No evidence of roosting bat activity Empty bird nest present in horizontal hollow	No evidence of bat roosting activity

Tree Reference	Species	PRF	Inspection			Bat Roost Potential
			1	2	3	
			hollow section; dry, smooth	section; dry, smooth	section; dry, smooth	
		2	No evidence of roosting bat activity damp, rough	No evidence of roosting bat activity damp, rough	N/A	
AT7	<i>Poplar Sp.</i>	1	No evidence of roosting bat activity dry, smooth, bird nests with eggs present in WP holes at 2m and 3m	No evidence of roosting bat activity dry, smooth, bird nest material present in WP hole at 2m wet, black, old soggy bird nest present in WP hole at 3m	No evidence of roosting bat activity dry, smooth, bird nest material present in WP hole at 2m wet, black, old soggy bird nest present in WP hole at 3m	No evidence of bat roosting activity
		2	No evidence of roosting bat activity dry, smooth, small number of woodlice present	No evidence of roosting bat activity dry, smooth, small number of woodlice present	N/A	

Tree Reference	Species	PRF	Inspection			Bat Roost Potential
			1	2	3	
AT8	<i>Oak</i>	1	No evidence of roosting bat activity dry, rough, dusty	No evidence of roosting bat activity dry, rough, dusty	N/A	No evidence of bat roosting activity
AT9	<i>Willow Sp.</i>	1	No evidence of bat roosting activity dry, rough	N/A	N/A	No evidence of bat roosting activity

3.8 Summary

Roosting bats - Buildings

- 3.8.1 Out of the twenty-four buildings surveyed, a total of three buildings with bat roost potential of Low or above, and which needed further survey work in the form of a bat roost emergence survey, were identified.
- 3.8.2 No bats were seen to emerge from any buildings during surveys.

Roosting bats - Trees

- 3.8.3 A total of 10 trees with bat roost potential which need further survey work in the form of a bat tree climbing assessment, were identified. Three high potential, four moderate potential, one low potential and two with negligible potential.
- 3.8.4 No evidence of bat roosting activity was recorded in any of the trees during the climbing assessments.

Foraging / commuting bats

- 3.8.5 The woodland between the lorry park and the railway lines to the east of the site recorded the highest levels of foraging and commuting activity during the transect surveys. The majority of the site recorded very limited levels of activity.
- 3.8.6 Up to nine species / groups of bat were recorded using the site. Common pipistrelle (*Pipistrellus pipistrellus*) was the most recorded bat across all surveys. Other species recorded include soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), Daubenton's (*Myotis daubentonii*), brown long-eared (*Plecotus auritus*), lesser horseshoe (*Rhinolophus hipposideros*), *Nyctalus* species and *Myotis* species.
- 3.8.7 Lesser horseshoe and brown long-eared bat were only recorded along the southern extent of the green field areas to the south

4.0 REFERENCES

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

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

5.0 FIGURES

Figure 1 – Site Location Plan

Figure 2 – Preliminary Roost Assessment Building and Trees Plan

Figure 3 –Static Detector Locations

Figure 4 – September 2021 Transect Results

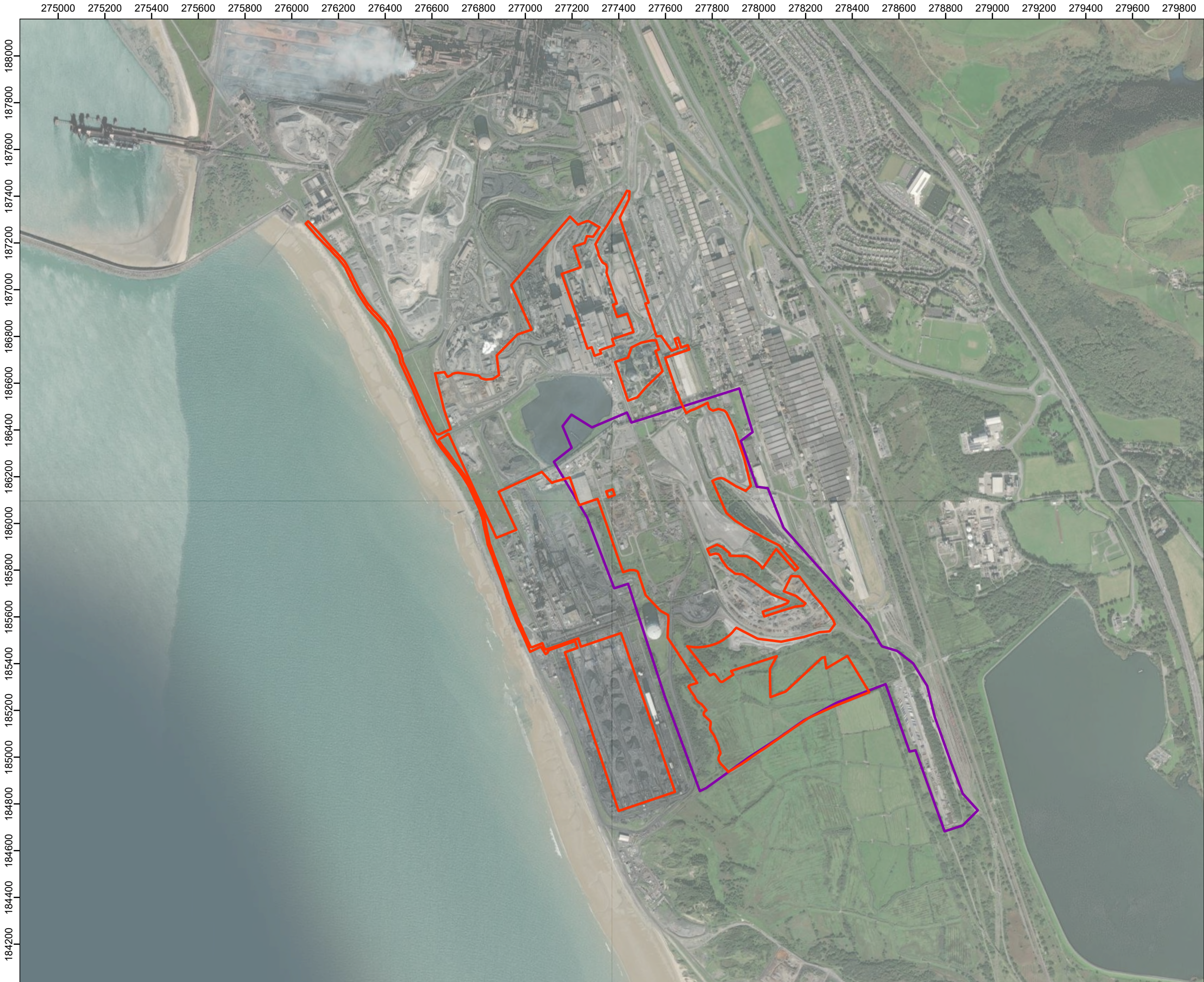
Figure 5 – April 2022 Transect Results

Figure 6 – May 2022 Transect Results

Figure 7 – June 2022 Transect Results

Figure 8 – July 2022 Transect Results

Figure 9 – August 2022 Transect Results



- Legend:
- Site boundary
 - 2021/2022 survey area

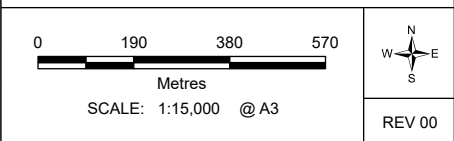


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Rev	Date	Description	Drm	Chk	App

P&C EAF



TITLE: Figure 1:
Site Location Plan





Legend:

- Site boundary
- 2021/2022 survey area
- PRA building
- PRA tree

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Rev	Date	Description	Drn	Chk	App

P&C EAF

RSK biocensus
EXPERTS IN ECOLOGY

TITLE: Figure 2:
PRA Buildings and Trees

0 150 300 450

Metres

SCALE: 1:12,000 @ A3

REV 00



Legend:

- Site boundary
- 2021/2022 survey area
- Static detector

00	16/08/2024	2487033	TG	EC	KOB
Rev	Date	Description	Drm	Chk	App

P&C EAF

RSK
biocensus
EXPERTS IN ECOLOGY

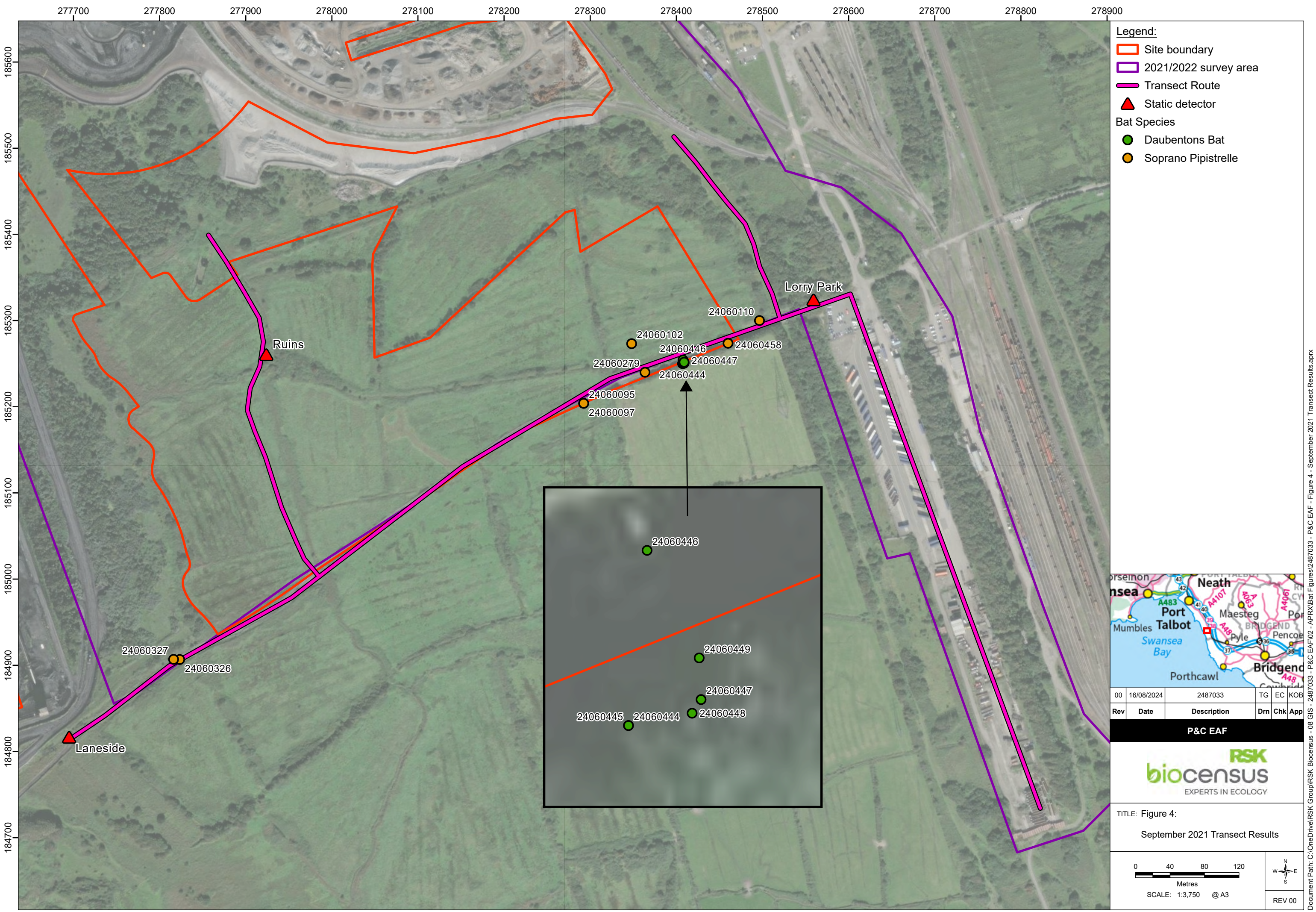
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Static Detector Locations

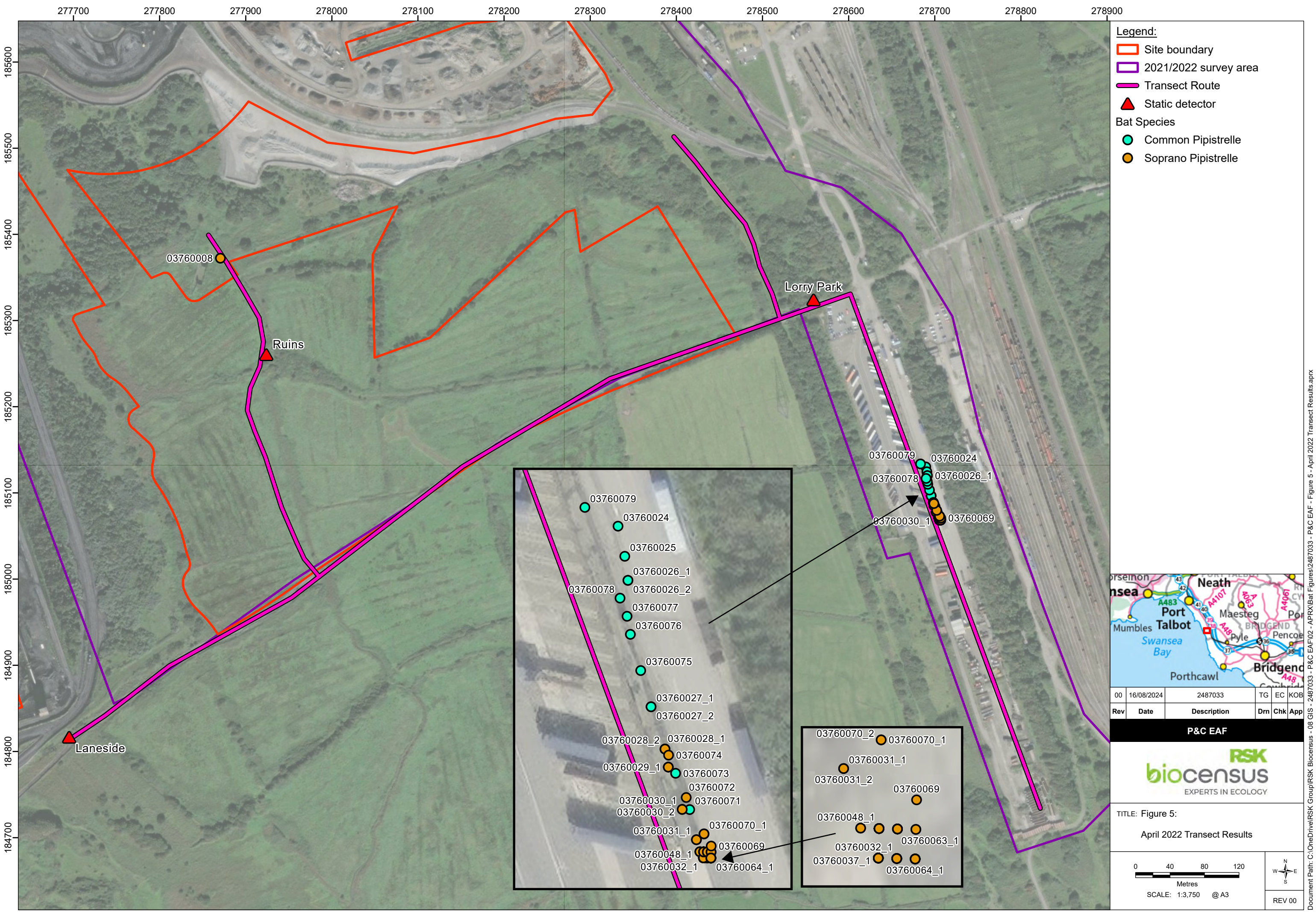
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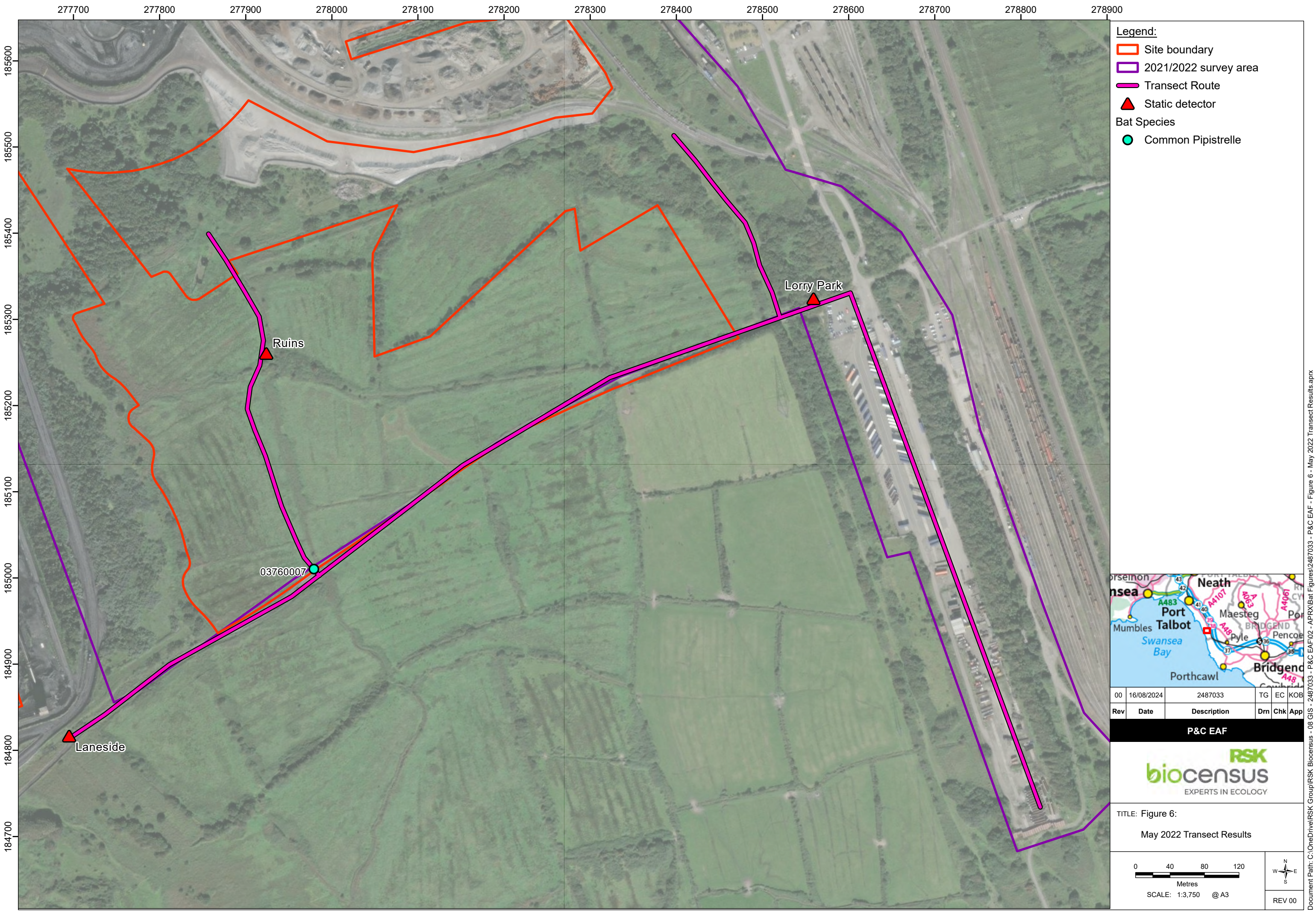
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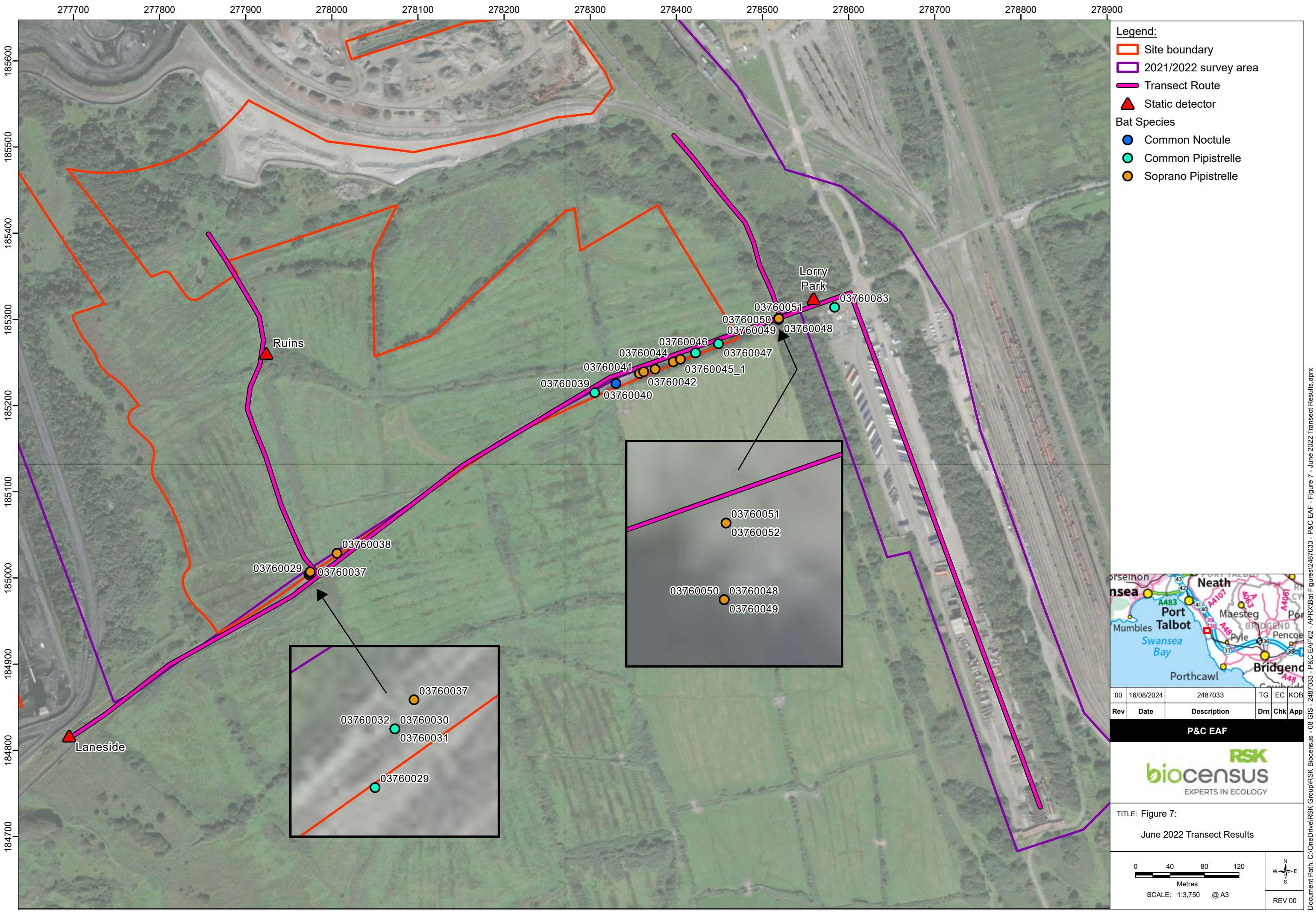
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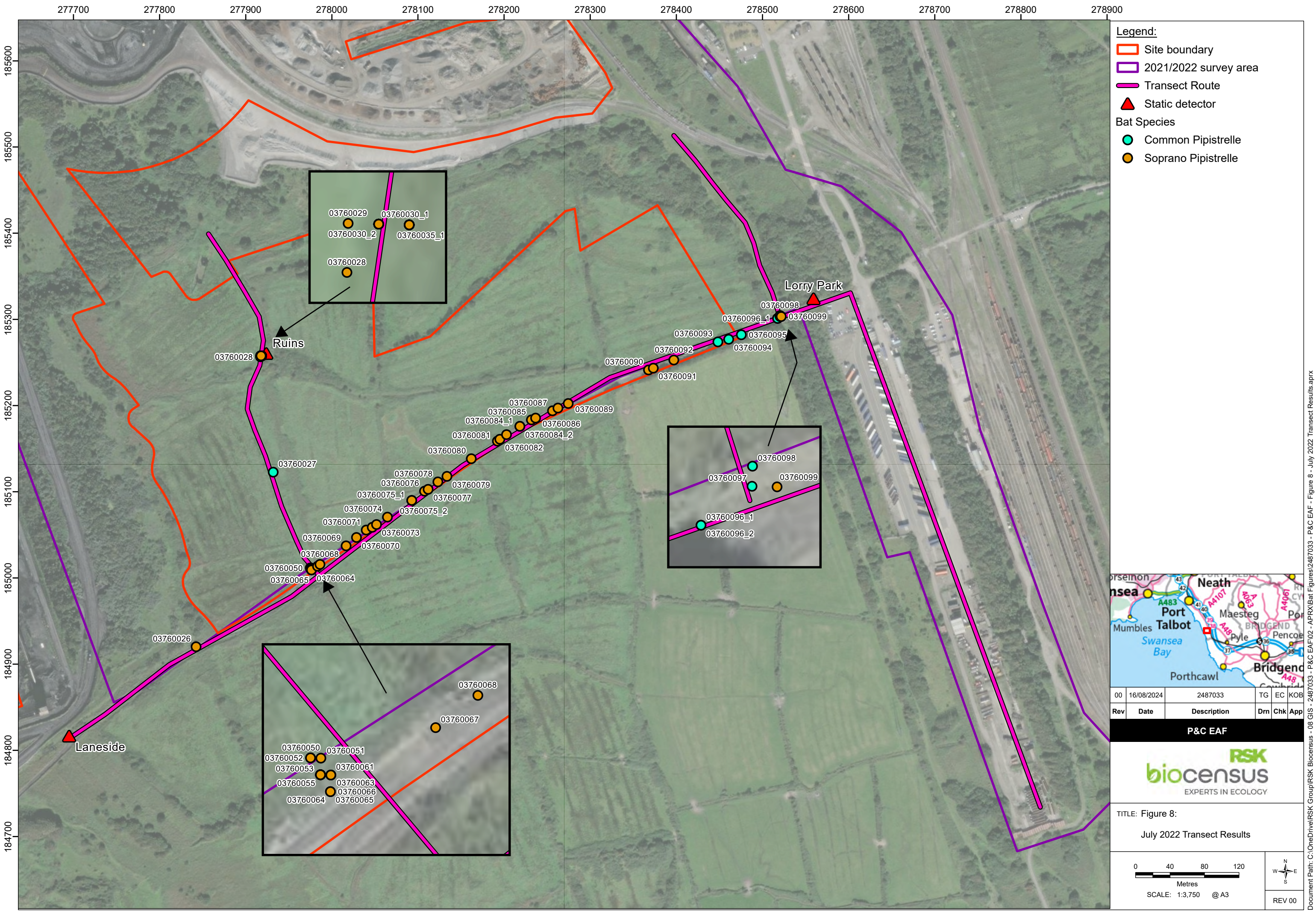
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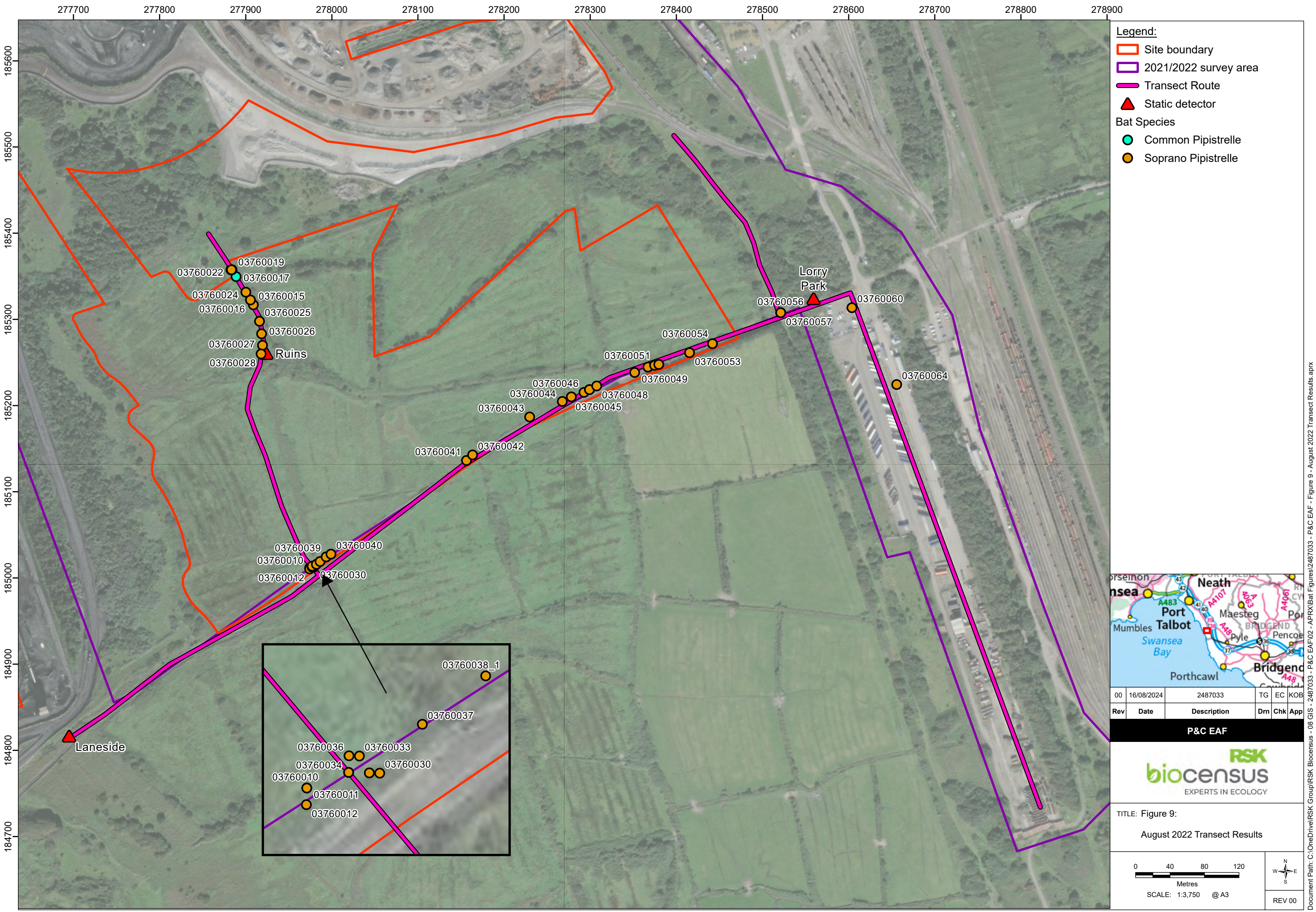












6.0 APPENDIX A – SURVEY CONDITION DATA

Survey dates and timings for each activity transect survey

Month	Date	Sunset Time	Start Time	End Time
September	21/09/2021	19:15	19:00	21:15
October	No suitable weather conditions			
April	21/04/2022	20:21	20:06	22:21
May	03/05/2022	20:41	20:26	22:41
June	01/06/2022	21:23	21:08	23:23
July	05/07/2022	21:34	21:19	23:15
August	11/08/2022	20:45	20:30	22:45



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Weather conditions recorded at the beginning of each activity transect survey

	Temperature (°C)	Cloud (Octas)	Wind (Beaufort)	Rainfall
21/09/2021	17	2	3	None
21/04/2022	16	2	4	None
03/05/2022	12	3	4	None
01/06/2022	14	2	4	None
05/07/2022	18	2	1	None
11/08/2022	22	0	3	None

Survey dates and timings for each static detector deployment

	Month	Start Date	End Date	Nº of Nights	5 Consecutive Nights Analysed (chosen on weather)
2021 / 2022 Survey Boundary	April	06/04/2022	20/04/2022	15	12/04/2022 – 16/04/2022
	May	03/05/2022	10/05/2022	7	03/05/2022 – 07/05/2022
	June	01/06/2022	08/06/2022	7	01/06/2022 – 05/06/2022
	June * additional deployment for Laneside location due to detector error	17/06/2022	22/06/2022	5	17/06/2022 – 22/06/2022
	July	05/07/2022	12/07/2022	7	05/07/2022 – 09/07/2022
	August	12/08/2022	18/08/2022	6	12/08/2022 – 16/08/2022
	September	01/09/2022	09/09/2022	8	02/09/2022 – 06/09/2022

	Month	Start Date	End Date	N° of Nights	5 Consecutive Nights Analysed (chosen on weather)
Additional red line boundary area (Works Reservoir)	Summer (August – September)	29/08/2023	04/09/2023	7	30/08/2023 – 03/09/2023
	Autumn (September – October)	27/09/2023	04/10/2023	8	27/09/2023 – 01/10/2023
	Spring (April – May)	29/04/2024	06/05/2024	8	01/05/2024 – 05/05/2024

Emergence and re-entry survey weather conditions

Building	Date	Survey Type	Temperature (°C)	Wind (Beaufort)	Cloud (Octas)	Precipitation
B2	04/05/2022	Emergence	14	3	2	None
B5	12/05/2022	Emergence	13	5	1	None
B10	17/05/2022	Emergence	14	4	1	None
	16/06/2022	Emergence	17	1	1	None

7.0 APPENDIX B – PHOTOGRAPHS

Photo 1: Derelict Buildings within Southern fields



Photo 2: Longlands Lane Structure



Photo 3: HAA Coal Rail Unloading Station



Photo 4: Portacabin



Photo 5: Abbey Coke Ovens Substation



Photo 6: Scrapyard Portacabins



Photo 7: Storage Shed within Scrapyard



Photo 8: Abby By-products Substation



Photo 9: Small LV Room and Lighting Tower



Photo 10: Scrap Stockyard Substation



Photo 11: Rail Control Tower



Photo 12: Kress Crossing Control Building



Photo 13: Scrap Handling Facility



Photo 14: Works Reservoir Pump House



Photo 15: Harsco Bailing Plant



Photo 16: Harsco Plant Substation



Photo 17: BOS Plant Engineering Offices

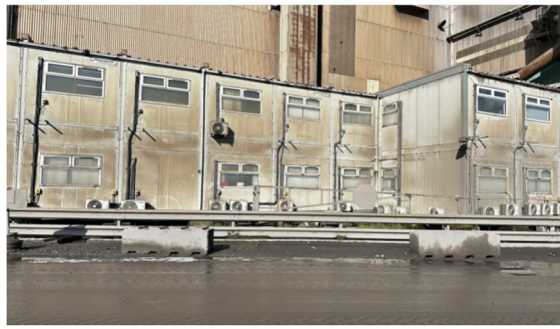


Photo 18: BOS Plant Maintenance Workshop



Photo 19: Penthouse



Photo 20: Cooling Tower



Photo 21: Treated Water Pump House



Photo 22: Overspill Car Park Gas Holder



Photo 23: Feeder Hopper (HAA)



Photo 24: Compressor House



