PHASE 2 SPECIES SURVEY REPORT 2023

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1 INTRODUCTION

1.1 Purpose and Scope of This Report

1.1.1 RPS were commissioned by Lanza Tech to undertake Phase 2 surveys for relevant species groups for land parcels within Port Talbot Docks. Additional surveys have been completed by Wardell Armstrong in late summer 2023.

Phase 2 Survey Results Presented in This Report

1.1.2 This report provides the results of the following species surveys undertaken on behalf of LanzaTech for bats, badger, otter, reptiles and great crested newt:

2023

- Late season remote recording and transect survey Temporary Construction Area (TCA) West.
- Badger activity survey (TCA West and TCA East).
- Otters (PDZ, Crown Wharf Dockside) and TCA1.

2022

- Bat activity transect and remote recording surveys Production Development Zone (PDZ), TCA1, Crown Wharf Dockside).
- Reptile presence/absence survey (PDZ, TCA1, Crown Wharf Dockside and the Railway Sidings).
- Badger sett and activity survey (PDZ, TCA1, Crown Wharf Dockside).
- Otter presence/absence survey (PDZ, TCA1, Crown Wharf Dockside).
- Great crested newt scoping survey (PDZ, TCA1, Crown Wharf Dockside).

1.1.3 The location and extent of the survey areas covered by the 2022 and 2023 surveys are shown in Drawing 1.

1.1.4 Prior to 2022 some survey work was completed in 2021 on behalf of XLCC. The survey covered an area of land referred to as the Harbourside site. This extensive survey area was subdivided into four areas, (referred to as Areas A, B, C West, and C East) based on their character and geographic context. The extent of each area is illustrated on Drawing 2. The XLCC survey area included TCA West located at the eastern end of Area C East. This report provides the 2021 survey results of relevance to TCA West.

2021

- Bat activity transect and remote recording surveys (TCA West and adjoining land).
- Reptile presence/absence survey (TCA West and adjoining land).
- Badger sett and activity survey (TCA West and adjoining land).

1.1.5 The 2021 surveys have also been helpful in understanding the presence of protected species and any common characteristics across the wider Harbourside area.

1.1.6 This report also provides an evaluation of the site's value for relevant species groups along with a broad assessment of potential impacts with outline recommendations on how impacts may be avoided.

1.1.7 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS. The surveys and desk-based assessments undertaken as part of this review and subsequent report including the Ecological Appraisal Notes are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013).

1.1.8 The species surveys have been used to help define the status of species that will need to be considered in the assessment of the development on ecology and biodiversity.

Phase 2 Survey Results Provided in Separate Stand-alone Reports

1.1.9 The results of other the following phase 2 surveys are provided in separate stand-alone reports for overwintering breeding birds and bryophytes (mosses and liverworts):

Overwintering and Breeding Birds

Winter 2021/2022

- Monthly overwintering bird survey visits, covering the PDZ and TCA West.

Winter 2022/2023

- Monthly surveys of overwintering bird activity on the open water dock focussing on Crown Wharf, Phoenix Wharf and Margam Wharf in the south-eastern part of the dock.

Bryophytes (mosses and liverworts)

October 2022

- A specialist bryophyte survey was carried out for the PDZ, TCA1 and the off-site disused railway line and sidings and is presented in a stand-alone report.

Invertebrates

June – September 2021

- An invertebrate survey of the Harbourside site (Areas A – C) was carried out in and is presented in 2021 by a specialist entomologist. The results are summarised in a stand-alone assessment report and includes precautionary extrapolation of the value of the PDZ based on the invertebrate assemblages associated with equivalent adjoining habitats.

1.2 Study Area and Zone of Influence

1.2.1 The Project Dragon study area comprises the following land parcels as defined on Drawing 1 (ECO02340-0003-01) with the central Ordnance Survey grid references provided below.

- Production Development Zone (PDZ) - SS764886.
- Crown Wharf Dockside (terrestrial habitats) - SS765887.
- Phoenix Way – land adjoining the hard standing access road - SS766887.
- Temporary Construction Areas (TCAs):
  - TCA1 - SS770887.
  - TCA East - SS767885

- TCA West, which is subdivided into two smaller compartments centred on SS 761886, and SS 760887

Production Development Zone

1.2.2 The Production Development Zone (PDZ) lies at the eastern end of the Harbourside site within Port Talbot Docks. It comprises extensive areas of Japanese knotweed and naturally regenerating willow scrub with some areas of grassland. A 3-4m high embankment rises to the level of the railway sidings to the south. The port road (Phoenix Way) forms the northern boundary PDZ.

Temporary Construction Areas

1.2.3 Temporary Construction Area 1 (TCA1) lies within Margam Wharf at the eastern end of the open water dock over 250m east of the boundary of the PDZ.

TCA East

1.2.4 TCA East is c3.9ha in extent and primarily comprises industrial buildings within areas of hardstanding with Localised patches of open grassland, tall ruderals, dense willow scrub, gorse and bramble. Several stands of Japanese knotweed *Reynoutria Japonica* are present along with non-native cotoneaster species.

TCA West

1.2.5 TCA West comprises two land parcels. The larger of the two is a mix of dense Japanese knotweed, regenerating willow scrub, mixed species scrub with small areas of regenerating grassland and bracken.

1.2.6 The smaller land parcel is an area of flat hardstanding on the site of a demolished industrial building.

Crown Wharf Dockside

1.2.7 The Crown Wharf dockside lies on the side of the open water dock to the north of the eastern half of the PDZ.

1.2.8 A narrow strip of vegetation between the road and the wharf was covered in the relevant Phase 2 surveys.

1.2.9 The dockside vegetation is a mix of dense bracken and rank tussocky grassland with smaller areas of bramble thicket and willow scrub. There are several small stands of Japanese knotweed and sea buckthorn *Hippophae rhamnoides*.

2 METHODS

2.1 Reptile Surveys

2.1.1 Reptile surveys were carried out in 2021 and 2022. The surveys were conducted in accordance with the recommended methodology outlined in the Herpetofauna Workers' Manual (Gent and Gibson, 2003) and the Froglife Advice Sheet 10 (Froglife, 1999).

Survey Coverage

2021

2.1.2 The 2021 survey covered the TCA West area as part of the 40ha Harbourside Site survey area.

2.1.3 A total of 37 artificial refuges (bitumen mats) were placed out in suitable habitat across Area C east with TCA West forming about 20% of the survey area. Each mat consisted of a rectangle of bitumen roofing felt measuring a minimum of least 50 cm x 50 cm. The mats were checked on 10 non-consecutive days from 11st July to 8th October. Survey dates and weather conditions during the survey visits are shown in Table 2-1.

Table 2-1. Reptile survey visits 2021

Date	Area C East including TCA West	Weather
01/07/21	✓	15ºC, dry, wind 4 (moderate breeze)
12/08/21	✓	15ºC, dry, wind 4 (moderate breeze)
17/08/21	✓	16ºC, dry, wind 3 (gentle breeze)
07/09/21	✓	18ºC, dry, wind 3 (gentle breeze)
14/09/21	✓	16ºC, dry, wind 3 (gentle breeze)
17/09/21	✓	18ºC, dry, wind 4 (moderate breeze)
29/09/21	✓	14ºC, dry, wind 3 (gentle breeze)
01/10/21	✓	13ºC, dry, wind 4 (moderate breeze)
06/10/21	✓	13ºC, dry, wind 3 (gentle breeze)
08/10/21	✓	16ºC, dry, wind 3 (gentle breeze)
Total No. of visits.	**10**	

2022

2.1.4 The 2022 reptile survey covered the PDZ, Crown Wharf dockside and TCA1 as well as habitats on either side of the railway sidings. The survey comprised 12 site visits in total with a minimum of 7 visits for each area between 31st August and 10th October 2022. Survey dates and locations are summarised in Table 2-2.

2.1.5 In total 412 bitumen mats were set out in accessible locations across the survey area in August 2022 as defined below:

- the PDZ (190 mats),
- the habitat strip alongside Crown Wharf dockside (10 mats)
- TCA1 (30 mats).
- Railway sidings south of the PDZ (160 mats),
- Off-site scrub woodland adjoining the railway line (22 mats).

2.1.6 In addition to the bitumen mats, 24 (No.) sheets of corrugated steel placed around the trees and scrub habitat in the eastern and western sections of the PDZ.

2.1.7 The distribution of the refuge mats in 2021 and 2022 surveys is shown on Drawing 3.

Table 2-2. Reptile survey visits 2022

Date	PDZ	TCA1	Crown Wharf Dockside	Off-site Railway Sidings	Off-site Scrub woodland	Weather
31/08/22	✓	✓	✓	-	✓	17ºC, dry, wind 4(moderate breeze)
13/09/22	✓	✓	✓	-	✓	16ºC, dry, wind 3 (gentle breeze)
15/09/22	✓	✓	✓	-	✓	16ºC, dry, wind 3 (gentle breeze)
16/09/22	✓	✓	✓	-	✓	14ºC, dry, wind 3 (gentle breeze)
20/09/22	✓	✓	-	-	✓	13ºC, dry, wind 1 (light air)
22/09/22	✓	✓	✓	✓	✓	16ºC, dry, wind 5 (fresh breeze)
26/09/22	✓part	-	-	-	-	14ºC, dry, wind 4 (moderate breeze)
28/09/22	✓	-	✓	✓	✓	13ºC, very light rain before survey, wind 3 (moderate breeze)
06/10/22	✓	✓	-	✓	✓	15ºC, dry, wind 6 (strong breeze)
11/10/22	✓	-	✓	✓	-	12ºC, dry, wind 2 (light breeze)
13/10/22	-	-	-	✓	-	14ºC, light rain before survey, wind 2 (light breeze)
18/10/22	-	-	-	✓	-	13ºC, dry, wind 3 (gentle breeze)
20/10/22	-	-	-	✓	-	15ºC, dry, wind 2 (light breeze)
Total No. Survey Visits.	**9**	**7**	**7**	**7**	**8**	

Survey Method

2.1.8 With extensive suitable habitat across the large site, the placement of artificial refuges was designed to cover the highest value habitats and to achieve a good distribution off mats in suitable reptile habitat areas throughout the application site.

2.1.9 In the PDZ the refuge mats were specifically placed along the grassy edges of the willow scrub bramble thicket, and Japanese knotweed stands.

2.1.10 Dense scrub, bramble thicket and Japanese knotweed prevented access into parts of TCA West. In this area, the placement of refuge mats was focussed on accessible edge habitats and grassland.

2.1.11 The mats were placed where they would receive sun in the morning and mid-afternoon, close to dense vegetation cover.

2.1.12 To achieve a wider distribution in the survey areas some refuge mats were placed on the edges of the willow scrub with limited ground cover in the PDZ. Most of the refuge mats in TCA1 were placed in relatively open vegetation reflecting the habitats present.

2.1.13 All the refuge mats were left to bed down for at least two weeks before the first survey visit was undertaken. The bedding in period allows vegetation to partially die back beneath the mat and allows reptiles to locate and use the mats.

2.1.14 A combination of mid to late afternoon and morning surveys were employed where the daytime air temperature was between 12 and 19ºC with relatively light wind and no precipitation. Sunny conditions were selected wherever possible.

2.1.15 During each visit all the mats and other areas of suitable basking habitat were checked from a distance using binoculars to spot basking reptiles. The mats were also carefully lifted to check for reptiles sheltering beneath them. All observed reptiles were recorded with species, and where possible sex and age class (juvenile or adult) noted.

2.2 Bats

Building Inspections 2023

2.2.1 An internal and external preliminary roost assessment (PRA) of the buildings on site was undertaken on 25th July 2023 by experienced ecologists from Wardell Armstrong.

2.2.2 The aim of the PRA was to assess the suitability of the buildings to support roosting bats, to search for evidence of roosting bats, and to determine whether emergence / re-entry surveys would be required to confirm roost presence or to characterise any roosts identified during the PRA.

2.2.3 The locations of the buildings covered in the PRA are shown on Drawing 5.

2.2.4 The detailed external inspection of the buildings comprised a search for Potential Roost Features (PRFs) i.e., gaps in the fabric of the building (such as lifted tiles, bleed gaps, etc) which could provide potential roost sites or give access into internal voids where bats could roost.

2.2.5 The locality of a building and its context within the surrounding landscape was also considered when assessing the suitability of features to be used by roosting bats. For example, the proximity of the buildings to potential flight lines and foraging habit, sources of illumination which would deter bats using potential roost features etc.

2.2.6 A search was also made of the building exteriors and accessible interiors for evidence of use by bats, such as urine staining, smoothing or polishing around openings, claw marks, feeding remains, droppings or live / dead bats.

2.2.7 The internal inspection also enabled a more thorough assessment of the suitability of potential roost features with consideration of the physical characteristics of internal voids such as light, accessibility from the building exterior, potential thermal stability etc.

2.2.8 Equipment used for the PRA included a high-powered torch, an endoscope, and binoculars.

2.2.9 The buildings were categorised using the assessment criteria in Table 4.1 of the 3rd ed. of the Bat Conservation Trust (BCT) Guidelines (Collins – Ed. 2016) as set out below:

- **High Bat Roost Suitability:** Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitats.
- **Moderate Bat Roost Suitability:** Structure with one or more potential roost sites that could be used by numbers of bats due to their size, shelter, protection, conditions, and surrounding habitats, but unlikely to support a roost of high conservation concern.
- **Low Bat Roost Suitability:** 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).
- **Negligible Bat Roost Suitability:** Structure with no potential to support bats.

Emergence / Re-entry Surveys 2023

2.2.10 Bat roost emergence / re-entry surveys were undertaken at four buildings which were assessed as having low suitability to be used by roosting bats during the Preliminary Roost Assessment. These were: Buildings B1, B5, B13 and B17.

2.2.11 The first dusk emergence survey was undertaken on the evening of Tuesday 22nd August. During that survey a bat was seen emerging from the building. Consequently, a dawn emergence survey was carried out on 8th September with a second dusk emergence survey on the 25th of September.

2.2.12 The emergence / re-entry surveys were carried out by a team of surveyors positioned around each building to ensure good visual coverage or all potential emergence / re-entry points.

2.2.13 Dusk surveys started at 15 minutes before sunset and ended 909 minutes after sunset. The dawn survey started 90 minutes before sunrise and ended 15 minutes after sunrise. The surveys were carries out in suitable weather conditions in accordance with best practice guidelines (Collins J. Ed. 2016).

2.2.14 Surveyors used Echo Meter Touch (Wildlife Acoustics Ltd) detectors attached to iPads or Samsung Galaxy Tablets. Species identification was made based on the call characteristics and observations of bats during the survey including bat size and light patterns.

2.2.15 During the dawn re-entry survey on 8th September 2023, an infrared camera (Canon XA60) and infrared spotlights were directed towards the vent on the northern elevation of Building B1 from which a bat had emerger during the first dusk survey. During the dusk emergence survey on 25th September 2023 the camera was placed inside Building B1. The camera footage was reviewed following the survey visit.

2.2.16 The dusk and dawn surveys were supplemented with remote recording using static detectors Wildlife Acoustics SM4BAT+) placed inside the building between the 14th and 29th September.

2.2.17 Bat calls analysed using Kaleidoscope Pro Analysis Software, this included a minimum of 10% of all calls, and those determined to be non-pipistrelle species.

Bat Activity Transect Surveys

2.2.18 Bat activity transect surveys were undertaken in 2021, 2022 and 2023 to assess how bats were utilising the survey areas for foraging and commuting.

2.2.19 The dates times and weather conditions along with the areas of the site covered by each survey are summarised in Table 2-3. All activity surveys were conducted in suitable weather conditions. The transects survey dates and routes are shown in Drawing 6.

Table 2-3. Weather conditions during bat transect surveys 2021, 2022 and 2023.

Survey date	Are of Site Surveyed	Temperature at Start (ºC)	Sunset / Sunrise Time	Precipitation	Wind (Beaufort scale: 0-12)	Cloud Cover (Oktas: 0-8)
07/06/2021 Dusk	TCA West and Southern boundary of PDZ	17	21:31	Dry	2 – light breeze	1 – very light cloud
19/07/2021 Dusk		25	21:24	Dry	2 – light breeze	3 – moderate cloud
12/08/2021 Dusk		17	20:45	Dry	6 – strong breeze	8 - overcast
06/09/2021 Dusk		20	19:52	Dry	1 – light air	2 – light cloud
15/06/2022 Dusk	PDZ	17		Dry	4 – moderate breeze	2 – light cloud

Survey date	Are of Site Surveyed	Temperature at Start (ºC)	Sunset / Sunrise Time	Precipitation	Wind (Beaufort scale: 0-12)	Cloud Cover (Oktas: 0-8)
18/07/2022 Dusk	PDZ and TCA1	25	21:25	Dry	1 – light air	7 - overcast
15/09/2022 Dusk	PDZ	15	19:30	Dry	1 – light air	2 – little cloud cover
30/08/2023 Dusk	TCA West and Southern boundary of PDZ	15	20:07	Dry	4 - moderate breeze	3 – moderate cloud

2.2.20 Each of the surveys in 2021, 2022 and 2023 was carried out by a team of two experienced bat surveyors, equipped with an Elekon Batlogger M detector. On each survey, the transect was walked starting at sunset and ending two hours after sunset. Notes were taken on the number of bats seen, their location, flight direction, behaviour (e.g. foraging or commuting passes) and likely species based on information from the detector. All detected calls were analysed using Bat Explorer software.

2.2.21 In 2022 a transect route was devised along a route through the PDZ that could be safely followed by surveyors and give the best possible coverage of all suitable bat foraging habitats on site. The same broad transect route was followed on each occasion but the start point, and direction of travel was altered between survey visits to gather information on any variation in levels of activity in different parts of the site over the post-dusk period.

2.2.22 The 2023 survey transect covered TCA West and the adjoining scrub habitats, the south-eastern boundary of the PDZ and TCA East. In TCA West and the PDZ, access was restricted to the margins of the dense scrub and point counts were undertaken at regular intervals along the transect, where the surveyors stopped and recorded all bat activity over four-minute periods.

Static Remote Recording

2.2.23 Transect surveys were supplemented by remote recording on automated bat detectors to gather more comprehensive data on bat activity at the site.

2.2.24 In 2021 and 2022 static detectors (Wildlife Acoustics SM4 models) were deployed throughout the site in multiple locations on likely flight lines / foraging features and left to record for at least 10 consecutive nights in spring, mid-summer, and late summer.

2.2.25 In each season for 2021 and 2022, five-night recording periods were selected for analysis, coinciding with optimal weather conditions derived from weather data from https://www.timeanddate.com/weather/uk. and https://www.visualcrossing.com/weather-history/. For the 2023 remote recording, 10 nights in total were analysed comprising 5 consecutive nights in early August, two consecutive nights in mid-August and three consecutive nights in late August. The analysis periods are provided in Table 2-4 (2021) Table 2-5 (2022) and Table 2-6 (2023).

2.2.26 The results of the transect surveys informed the placement of the remote static detectors in areas with the highest levels of during the latter half of the survey. The locations of remote static detectors in 2021, 2022 and 2023 are illustrated in Drawing 7.

2.2.27 In addition to these locations, a static detector was also placed in TCA east on the eastern boundary with the adjacent reedbed. The detector recorded for five consecutive nights monthly from July to October inclusive.

2.2.28 On each night, recording began at 30 minutes before sunset and ending 30 minutes after sunrise to cover the peak times that bats would be commuting to and from their roosts. Analysis of recordings was carried out using Wildlife Acoustics Kaleidoscope software.

Table 2-4. Remote bat recording analysis dates 2021.

Detector ID and Location (Drawing 7)	Month	Location	Habitat	Dates Analysed
A	May	Area C (East)	Scrub Woodland Edge	26/05/21 – 31/05/21
B		Area C (East)	Scrub Woodland Edge	
A	June	Area C (East)	Scrub Woodland Edge	02/06/21 – 07/06/21
B		Area C (East)	Scrub Woodland Edge	
C	July	Area C (East)	Linear scrub belt	20/07/21 – 25/07/21
B		Area C (East)	Scrub Woodland Edge	
C	August	Area C (East)	Linear scrub belt	02/08/21 – 07/08/21
B		Area C (East)	Scrub Woodland Edge	

Table 2-5. Remote bat recording analysis dates 2022.

Detector ID (Drawing 7)	Month	Location	Habitat	Dates Analysed
B	May	PDZ Southern boundary	Scrub edge	20/05/2022 – 25/05/2022 (5 nights)
C	May	PDZ – Eastern side	Grassland glade in scrub	20/05/2022 – 25/05/2022 (5 nights)
D	June	Off-site woodland edge	Woodland edge	22/06/2022 (1 night)
E	June	TCA1 Southeast	Open grassland and scattered scrub close to dock	22/06/2022 (1 night)
F	July	TCA1	Open grassland	22/06/2022 (1 night)
G	July	PDZ – Western side	Willow scrub edge habitat	20/07/2022 – 25/07/2022 (5 nights)
H	July	Railway siding south of PDZ	Scrub covered embankment	20/07/2022 – 25/07/2022 (5 nights)
I	July	PDZ Eastern Boundary	Scrub edge	20/07/2022 – 25/07/2022 (5 nights)
J	August	TCA1 Southeast	Open grassland	01/09/2022 – 06/09/2022 (5 nights)
K	August	Crown Wharf Dockside	Bracken and bramble	01/09/2022 – 06/09/2022 (5 nights)
L	August	TCA West - Eastern Boundary	Scrub edge	01/09/2022 – 06/09/2022 (5 nights)

Table 2-6. Remote bat recording analysis dates 2023.

Detector ID (Drawing 7)	Month	Location	Habitat	Dates Analysed
M	August	TCA West western edge	Scrub edge	02 – 07/08/2023 (5 nights) 15 – 17/08/2023 (2 nights) 22 – 25/08/2023 (3 nights)
N	August	TCA West / PDZ southern boundary	Scrub edge	02 – 07/08/2023 (5 nights) 15 – 17/08/2023 (2 nights) 22 – 25/08/2023 (3 nights)
O	August	TCA West north corner	Scrub edge by railway sidings	02 – 07/08/2023 (5 nights) 15 – 17/08/2023 (2 nights) 22 – 25/08/2023 (3 nights)
TCA East	July to October	TCA East eastern boundary	Scrub edge of reedbed	24 -31 July (5 nights) 15 – 21 August (5nights) 14 – 20 September (5 nights) 16 – 23 October (5 nights)

2.3 Badger Survey

2.3.1 During walkover habitat surveys in June and July 2022, searches were made for signs of badger activity across the PDZ, and adjoining habitats as well as the lower value habitat in TCA1 and alongside the open water dock.

2.3.2 Walkover surveys of TCA West were undertaken in July 2021 with walkovers of both TCA East and West completed in August 2023.

2.3.3 The aim of the survey was to assess if any part overlaps an active badger territory. Evidence searched for included badger latrines; dung pits, foraging (snuffle holes), and prints. Mammal paths were inspected to gauge the potential for use by badgers.

2.3.4 During the reptile survey visits of the PDZ in September 2022, the surveyors also looked for dung pits and signs of foraging activity. Any activity recorded was mapped with GPS co-ordinates taken to define locations.

2.4 Otter Survey

2.4.1 An assessment was undertaken to assess the potential value of the site and habitats adjoining the planning application site in 2022 based on published guidance (Chanin , 2003a and 2003b). The terrestrial habitat survey assessed the potential for features within the site to be used as a place of shelter, including above-ground resting sites (couches) and cavity/burrow features with the potential to be used as a holt.

2.4.2 The assessment of terrestrial habitats reviewed the location, extent, and connectivity of all areas of dense vegetation cover within and adjoining the site and the potential for features to provide undisturbed shelter during the daytime was also considered.

2.4.3 Periodic walkover surveys were subsequently undertaken in the habitats with higher potential value for otter between September 2022 and January 2023. Features / habitats with at least some areas of dense cover were assessed and were physically accessed wherever possible. Where the scrub vegetation was very dense, such as bramble thicket and stands of common reed, the margins were searched for signs of clear mammal paths large enough to be used by otter.

2.4.4 Alongside the identification of mammal paths, searches were made for otter field signs including spraints, prints in soft ground, and the remains of prey items such as fish, crab carapace, shellfish

or skinned amphibians. Any activity recorded was mapped with GPS co-ordinates taken to define locations.

2.4.5 In the PDZ the walkover survey visits focused on the seasonally flooded areas and the adjoining willow scrub in the northern section, closest to the open water dock but separated from it by Phoenix Way. Scrub / woodland on the eastern edge of the large reedbed (which adjoins the south-eastern boundary of TCA East was also included in the walkover surveys. Specific searches were made potential mammal paths connecting these habitats to the open water dock.

2.4.6 A further walkover survey of the northern boundary of the reedbed was undertaken in August 2023 to search evidence of otters moving into the reedbed from the adjoining operational yards.

2.4.7 The survey visits were conducted during dry weather conditions when there was good visibility, avoiding strong winds and heavy rain.

Remote Camera Recording

2.4.8 A remote motion-sensing camera was set up on a mammal path in an open area of willow scrub woodland between the margin of the extensive reedbed and a bramble thicket close to the south-eastern boundary of TCA East. The camera remained in place throughout September and October 2022. A trial camera was also placed on a clear mammal path (probable fox) on the northern boundary of the PDZ close to an area of dense reed between October and January.

2.4.9 The cameras were placed in locations where animals using the path would trigger the camera and video while avoiding positions where the camera would be triggered by foliage moving in the wind. Footage from the trial camera was systematically checked for evidence of use by otters and other species of mammal.

2.5 Great Crested Newt Scoping Survey

2.5.1 An assessment was undertaken of waterbodies within 250m of the Project Dragon development boundary in February 2023. Each waterbody within this zone were assessed in relation to their suitability to support breeding populations of great created newt in accordance with published Guidance (English Nature, 2001). The size and associated features of each waterbody were considered as well as the context and closest distance to the boundary of the development.

2.6 Survey Limitations

Production Development Zone – All surveys

2.6.1 Areas of the PDZ were covered by dense Japanese Knotweed to the extent that parts of the area were inaccessible. Every effort was made to assess suitability of the area for a range of species but due to accessibility issues, this wasn’t possible for all areas especially in the PDZ.

Reptile Surveys

2021

2.6.2 The dense stands of Japanese knotweed, continuous blocks of willow scrub, dense bramble and bracken restricted the number of suitable locations where mats could be placed in TCA west. Much of this area was too overgrown to provide suitable locations for mats due to either shading, absence of suitable low ground cover or difficulty accessing suitable areas.

2022

2.6.3 Due to the size of the site, areas of grassland and scattered scrub were subject to sampling. Mats were located where there was structural variety with good cover and basking areas. This approach will not have been a constraint on the assessment of presence / absence of the different reptile species in each area of the site, but the low density of refuges will limit the accuracy of estimating population size.

2.6.4 Changes in weather conditions during survey visits required transects / mat checks to be temporarily halted on several occasions, but periods of sub-optimal weather were very brief and surveys were recommenced in suitable conditions.

Preliminary (Bat) Roost Assessment

2.6.5 Access to the tank farm areas of the site, as shown on Drawing 5, was not permitted by Tata Steel. Therefore, these buildings have not been surveyed.

Bat Activity Surveys

Transects

2.6.6 Significant light pollution was observed from compound of the neighbouring cement works to the north of the PDZ. The light emitted from the overhead compound lights illuminated the northern boundary of the production development zone area and the widespread Japanese knotweed towards the centre of the site. Streetlights also illuminate the unnamed port road adjoining the entire northern boundary of the PDZ.

2.6.7 The transect route followed the boundaries of dense vegetation (dense stands of Japanese knotweed, continuous blocks of willow scrub, and dense bramble) in the central part of the temporary construction area.

Static Detector Recording

2.6.8 It was necessary to secure the recording equipment in positions that were out of reach and relatively obscure to reduce the likelihood of them being stolen or vandalised. Particularly when the detectors were placed within shrubs this meant that they were covered in more foliage than would normally be considered optimal.

2.6.9 A detector placed on the north-western boundary of the PDZ in late May recorded noise files which upon analysis were recordings of the traffic using the unnamed port road and possibly operational noise from the Tarmac site. Observations during transect surveys were used to define the levels of activity in this part of the PDZ.

General Limitations of Ecological Surveys

2.6.10 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

Accurate Lifespan of Ecological Data

2.6.11 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject.

2.6.12 The assessment of protected species potential contained in this report are considered likely to be accurate for up to three years, assuming no significant changes to the site conditions.

3 REPTILE SURVEY RESULTS

Overall Distribution

3.1.1 The survey confirmed the presence of three reptile species within the survey area. Common lizard was the most frequently recorded species with smaller numbers of slow worm and grass snake. The results of the surveys are described below with the survey results presented in the Tables 4.1, 4.2 and 4.3.

3.1.2 The results of the 2021 and 2022 reptile survey are presented in the context of different sections of the survey area; PDZ, Crown Wharf dockside, TCA1, TCA West, the railway sidings and adjoining off-site scrub woodland. The sidings were sub-divided into the western section which is a wide expanse of open ground with scattered shrubs, and the narrower eastern section where there are adjoining areas of grassland and scrub close to the railway line.

3.1.3 The Reptile Survey results are illustrated in Drawing 4.

Common Lizard

3.1.4 A small number of common lizards was recorded in the open ground adjoining scrub on the north-western boundary of the TCA West in 2021. A peak count of 3 adults was recorded, with juveniles also recorded indicating a small breeding population.

3.1.5 Common lizard was frequently recorded in the PDZ with a peak count of 18 in late September 2022. The PDZ is associated with the most optimal habitat for this species, with parts of the habitat comprising grassland, bramble, gorse, and bracken providing sheltered basking opportunities close to cover. Only a single common lizard was recorded in the Crown Wharf dockside on one occasion.

3.1.6 Common lizard (adult and juvenile) was also recorded in the grassy margin beside off-site scrub woodland adjoining the railway line, but with a peak of only one adult. This off-site scrub woodland is heavily shaded and has very low suitability for common lizard. Based on limited extent of reptile habitat, the potential carrying capacity of this area will be low.

3.1.7 No common lizards were found in the railway sidings, which comprised large expanses of bare ground and ephemeral vegetation.

3.1.8 The 2021 and 2022 results are summarised in Table 3-1.

Table 3-1. 2021 and 2022 Common lizard survey peak counts by survey area.

Survey Year	PDZ	Crown Wharf Dockside	TCA West and adjacent habitats	Railway Sidings East	Railway sidings West	Scrub woodland adjoining Railway Sidings
2021	n/a	n/a	3 adults (2 juveniles)	n/a	n/a	n/a
2022	18 adults (6 juveniles)-	1 adult-	0	0	0	1 adult (1 juvenile)

Slow Worm

3.1.9 A small number of slow worms was recorded in the TCA West and adjacent habitats in 2021, with a peak count of 7 adults and 5 juveniles animals indicating a small breeding population. Adults and juveniles were recorded in the habitats in TCA West.

3.1.10 The 2022 survey confirmed the presence of small numbers of slow worm in the PDZ, in grassland alongside the railway sidings (eastern end) on the margin of the off-site scrub woodland. No slow worm were recorded in the TCA1 or at Crown Wharf dockside.

3.1.11 There was a peak count of two adult slow worm in the PDZ across the survey visits with the individuals found on the edges of scrub woodland towards the boundaries of the survey area. The PDZ has suitable habitat for slow worm with open areas of grassland and in particular the grassland areas between densely shaded areas of willow scrub in the PDZ including the southern edge at the base of the railway embankment. There are also a few small areas of open grassland within dense stands of Japanese knotweed.

3.1.12 To the south of the railway sidings is a steep north-facing grassland bank with linear plantation along the top. A single slow worm was recorded on a south-facing grass bank on the far side of this woodland block.

3.1.13 No slow worms were recorded in the western section of the sidings south of the PDZ where there was sparse ground cover and fewer opportunities for shelter or cover.

3.1.14 At the eastern end of the sidings, adults and a single juvenile slow worm were recorded in a small area of scrub and grassland located adjacent to the railway line.

3.1.15 The 2021 and 2022 results are summarised in Table 3-2.

Table 3-2. 2021 and 2022 Slow worm survey peak counts

Survey Year	PDZ (and eastern boundary of TCA West)	Crown Wharf Dockside	TCA West and Adjacent Habitats	Railway Sidings East	Railway Sidings West	Scrub Woodland Adjoining Railway Sidings
2021	n/a	n/a	7 adults (5 juveniles)	n/a	n/a	n/a
2022	2 adults	0		2 adults	0	2 sub-adults

Grass Snake

3.1.16 No grass snake were recorded in the 2021 survey of the TCA West and adjacent habitats, but individual sub-adults and adults were recorded in other areas of the Harbourside site.

3.1.17 Adult, sub-adult and juvenile grass snakes were all recorded in the PDZ during the 2022 survey with at least one individual recorded in four of the six survey areas.

3.1.18 In the PDZ, grass snakes were found on four occasions, predominately under mats in the grassland areas. Suitable grass snake habitat is present across the PDZ with the seasonally dry reedbed areas a potential source of amphibian prey. Two different adults were recorded in the PDZ on two separate occasions. A juvenile was recorded in the PDZ on one occasion, late in season mid-October at a time when they will be moving towards hibernation sites. Juvenile and sub-adult grass snake was also found at Crown Wharf dockside, in late September and October.

3.1.19 Individual sub-adult grass snake were also recorded in Crown Wharf dockside, at the eastern end of the railway sidings and on the margin of the off-site scrub woodland adjoining the railway line.

3.1.20 The 2021 and 2022 results are summarised in Table 3-3.

Table 3-3. 2021 and 2022 Grass snake survey peak counts

Survey Year	PDZ	Crown Wharf Dockside	TCA West and adjacent habitats	Railway Sidings East	Railway sidings West	Land Adjoining Railway Sidings
2021	n/a	n/a	0	n/a	n/a	n/a
2022	2 adults	0	1 juvenile	1 sub-adult	0	1 sub-adult

4 BAT SURVEY RESULTS

4.1 Preliminary Roost Assessment (PRA) of Buildings

4.1.1 The PRA identified four buildings with potential roost features which could be used by bats: Building B1, B5, B13 and B17. These four buildings were assessed as having low suitability for roosting bats, and a single emergence / re-entry survey was subsequently carried out on each building.

4.1.2 A summary of the PRA results is provided in Appendix A, with detailed building descriptions and photos in Appendix B.

4.2 Bat Emergence / Re-entry Surveys

4.2.1 No bats were seen entering or emerging from features on buildings B5, B13 or B17

4.2.2 One bat was seen emerging from a vent on the northern elevation of Building 1 during the first dusk emergence survey on 22nd August, 19 minutes after sunset. The bat was not calling and could not be identified to species. The location of the emergence is shown on Drawing 5. Moderate levels of bat foraging activity, mostly common pipistrelles, was recorded around the building, particularly to the north, close to the boundary between TCA East and TCA West. Very small numbers or soprano pipistrelle and noctule passes were also recorded.

4.2.3 Very little bat activity was recorded by surveyors (15 common pipistrelle passes) or the static detector inside the building (4 common pipistrelle passes) was recorded during the dawn re-entry survey, and no bats were seen entering roost features.

4.2.4 During the second dusk survey on 25th September, one common pipistrelle was seen emerging 25 minutes after sunset, from the vent on the northern elevation from which a bat emerged during the first dusk survey. The infra-red camera footage showed the bat emerging from above an internal window between the main body of the building and a small extension on the northern elevation, begore flying out of the vent in the main body of the building.

4.2.5 Bats were again seen foraging north of the building with moderate levels of activity (506 passes in total) mostly of common pipistrelle, with 10 soprano pipistrelle passes. The static detector in the building recorded only 24 passes, all common pipistrelle.

4.3 Activity Transect Surveys

4.3.1 Generally low levels of bat activity were recorded during the transect surveys between 2021 and 2023. Just three species were recorded: common pipistrelle, soprano pipistrelle and noctule. The results for each year are described in more detail below and presented on Drawing 6.

2021

4.3.2 Very low levels of bat activity were recorded during the 2021 transect. No bat passes were recorded in the June or August transects. In the July transect, three common pipistrelle passes were recorded on the western edge of TCA West and the southern boundary of the PDZ. A further two common pipistrelle passes were recorded on the southern boundary of the PDZ in September.

2022

4.3.3 On the transect surveys, all but one of the detections of bat activity was common pipistrelle bats, with only a single bat pass of a soprano pipistrelle.

4.3.4 Most activity was associated with the north-eastern and eastern parts of the PDZ with extended periods of foraging by a small number of bats.

4.3.5 Low levels of bat activity (occasional, infrequent commuting passes) were recorded in the centre of the PDZ with no extended foraging detected or observed. Each transect survey also included point counts in TCA1. Common pipistrelle was very rarely encountered in the TCA1. A summary of the activity recorded during the 2022 transect surveys is presented in Table 4-1.

Table 4-1. Number of bat passes recorded on transect surveys – PDZ and TCA1 (2022).

Season	Common pipistrelle passes	Soprano pipistrelle passes	Total no. of passes
Spring	58	0	58
Mid-summer	22	0	22
Late summer	39	1	40

2023

4.3.6 Low levels of bat activity were detected during the late August transect of TCA West and the Southern boundary of the PDZ. Most of the activity was common pipistrelle (14 passes) focused mainly on the western edge of TCA West. Soprano pipistrelle was recorded rarely (5 passes) along Phoenix Wharf Road and the southern site boundary with the off-site railway sidings. Three noctule passes were also recorded.

4.4 Remote Recording (Static Detectors)

TCA West (2021)

4.4.1 A total of 5 bat species were recorded across the site in 2021: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule and an unidentified Myotis species (Table 4-2).

4.4.2 Most passes were common pipistrelle (approx. 78%) followed by noctule (15%) soprano pipistrelle (approx. 5%) Nathusius' pipistrelle (1.5%) and a single Myotis sp. call.

4.4.3 Activity levels were low in May but steadily increased to moderate with overall levels peaking in August. The highest activity was recorded on the south-east corner of TCA West (Location C adjoining the PDZ) and on the scrubby edge of off-site railway sidings to the south of the PDZ. The scrub on the railway embankment provides a sheltered linear flight path used by foraging and commuting bats, with pipistrelle and Myotis bats recorded. Noctule bats forage and commute at higher altitude and noctule calls recorded at Location C could relate to bats flying high over the PDZ, and TCA West.

4.4.4 Remote recording at scrub edge habitat close to TCA West (Locations B and A) recorded lower levels of activity. This location is more exposed to the prevailing south-west wind than the scrub on the railway embankment.

4.4.5 A small number of Nathusius' pipistrelles calls were recorded in May, June and September which suggests a resident bat in the wider local area. Nathusius' pipistrelle males have been recorded very close to this location by the National Bat Monitoring Programme (https://www.bats.org.uk/our-work/national-bat-monitoring-programme/surveys/national-nathusius-pipistrelle-survey - accessed 14/09/2023).

Table 4-2. Summary of bat activity levels recorded on remote detectors 2021

Month	Detector Location	Common pipistrelle	Soprano pipistrelle	Nathusius's pipstrelle	Noctule	Myotis sp.
May	A – TCA West, western boundary	23	1	0	3	0
May	B - TCA West, southwest corner	26	2	1	4	0
June	A – TCA West, western boundary	66	3	3	25	0
June	B - TCA West, southwest corner	71	4	10	45	0
July	C - TCA West southeast corner adjoining PDZ	112	3	0	44	0
July	B - TCA West, southwest corner	93	6	0	15	0
August	C - TCA West southeast corner adjoining PDZ	199	8	0	12	0
August	B - TCA West, southwest corner	214	22	0	23	0
September	C - TCA West southeast corner adjoining PDZ	103	11	3	3	1

PDZ, Crown Wharf Dockside and TCA1 (2022)

4.4.6 A summary of the level of activity recorded on remote detectors deployed for 5 nights is presented in Table 5-3.

4.4.7 The relatively low levels of bat activity on the remote recorders mirrored the results of the transect surveys. Common pipistrelle being the principal species recorded in every location. An average of less than 20 bat passes per night were recorded in four of the seven remote recording locations.

4.4.8 Activity recorded on the remote detectors in the PDZ was noticeably higher in July when they were located adjacent to the common pipistrelle foraging habitat. On the eastern boundary alongside the line of conifers there was an average of 185 calls/night and on the southern boundary of the PDZ where the scrub woodland adjoins the railway sidings there was an average of 120 calls per night.

4.4.9 Remote recording in Crown Wharf dockside recorded low levels of bat activity in July with slightly higher levels of activity in September. The levels of soprano pipistrelle activity (average of 24 calls per night) and noctule activity (average of 3 calls per night) were higher in this location than in other remote recording locations within the site.

4.4.10 Static detectors placed out in TCA1 for single non-consecutive nights in July (Locations D, E and F in Table 3-5) recorded 63 and 5 common pipistrelle passes. An average of less than 8 common pipistrelle calls per night were detected in the TCA1 during the 5-day recording period in late summer. A single soprano pipistrelle detection was the only other activity recorded over the two singe nights of recording in TCA1.

4.4.11 Noctule bats were consistently recorded at low frequency on remote detectors. The spacing of the calls over the night-time periods indicates a small number of bats commuting over the site.

4.4.12 Nathusius' pipistrelle bat was recorded on only one detector over the entire survey period, with a single confirmed pass on the western boundary of the PDZ on the scrubby boundary adjoining a very extensive stand of Japanese knotweed.

Table 4-3: Summary of bat activity levels recorded on remote detectors during 5-night periods 2022.

Season	Remote Detector ID	Habitat location	Average passes per night over 5 day recording period			
			Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Noctule
May 2022	B	Western part of PDZ; scrub adjacent to very extensive stand of Japanese knotweed	5	0	0.2	0.4
	C	South-eastern part of PDZ; bramble scrub adjacent to naturally regenerating grassland	13.6	0	0	0
July 2022	G	Crown Wharf dockside, western end; bracken and ephemeral vegetation	18.6	0.2	0	0.4
	H	Southern boundary of PDZ - woodland edge; ephemeral vegetation and bare ground	120.8	1	0	0.6
	I	Eastern boundary of PDZ; conifer trees (Leyland cypress) adjacent to ephemeral and gorse vegetation	185.4	1.4	0	0.2
August 2022	J	TCA 1 Scrub adjacent to Margam Wharf dockside	7.8	0.6	0.2	5.8
	K	Crown Wharf dockside – eastern end; scattered broadleaved tree located on the dockside	48.8	24.4	0	3
	L	North-western part of PDZ; scrub woodland on the northern boundary	19.6	1.6	0	0.6

TCA West 2023

4.4.13 Three species of bat were recorded during the August 2023 remote recording at TCA West (Table 4-4). Common pipistrelle was the most frequently recorded species followed by noctule, with soprano pipistrelle the least frequently encountered.

4.4.14 Bat activity levels were very low for all three species and at all three locations. The highest levels of activity (although still very low) were on the southern edge of TCA West close to the adjacent railway sidings, where three bat species were recorded. The scrub covered embankments provide sheltered linear features with value as foraging and commuting features. Relatively high levels of bat activity in this location within TCA West is consistent with the 2021 and 2022 surveys.

4.4.15 Only one bat species (common pipistrelle) was recorded in the northern part of TCA West, and with very low levels of activity. No bats were recorded at the northern corner of TCA West adjacent to Phoenix Way.

Table 4-4. Summary of bat activity levels recorded on remote detectors over 10 nights in 2023 at TCA West.

Month	Remote Detector ID	Location and Habitat	Average Passes Per Night Over 10 Nights		
			Common Pipistrelle	Soprano Pipistrelle	Noctule
August	M	TCA West western edge, scrub edge	1.9	0	0
August	N	TCA West north corner, scrub edge	5	1	2
August	O	TCA West / PDZ southern boundary, scrub edge beside railway sidings	0	0	0

TCA East 2023

4.4.16 Four species of bat were recorded in TCA East during remote recording in July to October 2023. Almost all of the calls were common pipistrelle (94.4%) with a small number of soprano pipistrelle passes (4.7%) and very few passes of Noctule and Nathusius' pipistrelle (both less than 1% of calls). Activity levels were moderate in July dropping to low in august with very little activity in September and lower still in October. The activity was focused along the southern boundary of TCA East on the scrub edge of the adjacent reedbed. The static detector results are summarised in Table 4-5.

4.4.17 Bat foraging activity was also recorded in TCA East during the emergence surveys of buildings. Moderate levels common pipistrelle foraging activity were recorded close to Building 1 mainly associated with the western boundary of TCA East with the PDZ. Lower levels of common pipistrelle foraging was recorded around the building.

4.4.18 Very little bat activity was recorded around the buildings in the northeast of TCA East adjacent to Phoenix Way.

Table 4-5. Summary of bat activity levels recorded on remote detectors in 2023 at TCA East.

Month	Average Passes Per Night Over 5 Nights			
	Common Pipistrelle	Soprano Pipistrelle	Noctule	Nathusius' Pipistrelle
July	97	2	0	0
August	20.6	4	0.8	0
September	7.4	0.4	0	0.4
October	4	0	0	0

4.5 Bat Species Distribution

Common Pipistrelle

4.5.1 Common pipistrelle was the most frequently encountered species during the transects and remote recording each year. In 2022, the highest levels of activity were recorded on the eastern side of PDZ with foraging and commuting behaviour recorded. A maximum of 927 calls were recorded over a 5-night period. The habitats in this area comprise scrub edge, open grassland, bramble and gorse scrub with the data from static detectors and surveyor observations confirmed extended periods of foraging. Common pipistrelle foraging activity was also observed along the unnamed port road between the Crown Wharf dockside and the PDZ in 2022 with individual common pipistrelle were seen flying up and down the road, and multiple bats observed foraging around streetlights.

4.5.2 The southern boundary of the PDZ was also associated with common pipistrelle in 2021 and 2022. A maximum of 604 passes were recorded over a 5-night period in 2022. In 2021 the activity recorded in the adjacent south-eastern corner of the TCA West was up 112 passes over 5 nights.

4.5.3 Across the three remote recording locations in TCA West in 2021 the number of passes varied between 23 and 214 over the 5-day periods. The levels of activity noticeably low in spring.

4.5.4 By comparison activity levels were much lower in TCA West in August 2023 with between 2 and 11 passes per night.

4.5.5 In TCA1, no activity was recorded during the transects, and typically very low levels of per night but with higher levels of activity recorded overnight in July 2022.

4.5.6 Moderate levels of common pipistrelle activity were recorded at TCA East focused on the scrubby boundaries with the PDZ to the west and the reedbed to the south. Low levels of activity were recorded around Building 1 with very little activity in the northern part of the site. The results indicate these areas are used as regular foraging habitat by at least small numbers of common pipistrelles.

Soprano Pipistrelle

4.5.7 Soprano pipistrelle was the second most recorded species on the static detectors; accounting for 6% of all the recorded bat activity in 2022. Soprano pipistrelle calls were recorded in low number on all the remote detectors placed out in mid and late summer 2022, but typically with an average of less than two passes were detected per night and most commonly recorded on the northern boundary of PDZ. There were no detections in spring 2022 when the remote detectors were placed in the western and southern parts of the PDZ.

4.5.8 In 2021 on the boundaries of TCA West over 5-day periods the levels of activity varied from 1 to 22 passes indicative of very low levels of activity. Recorded activity levels were even lower in August 2023 with soprano pipistrelle recorded at only one of three locations and with between 0 and 4 passes per night.

4.5.9 Notably higher levels of soprano pipistrelle were detected on the remote detectors deployed in Crown Wharf dockside in late summer 2022 with an average of 24 passes per night. The recordings included social calling and indicated the presence of multiple bats.

4.5.10 Negligible soprano pipistrelle activity was recorded in TCA1.

4.5.11 Very low levels of soprano pipistrelle were recorded in TCA East around building 1 and on the scrub boundary with the reedbed indicating occasional foraging by very small numbers of bats.

Noctule

4.5.12 Noctule were very occasionally recorded on the majority of the remote detectors and was the third most common species with 1.1% of the total calls recorded during the remote recording surveys in 2022.

4.5.13 Slightly higher levels of noctule activity were recorded on detectors placed in the TCA1 in August 2022 with an average of under 6 passes per night. In comparison there were very few noctule passes during the single nights recording in TCA1 in July 2022 and low levels of activity recorded at the Crown Wharf dockside.

4.5.14 At TCA West Noctule was the second most recorded species in 2021 with approximately 15% of all passes. Activity levels were very low in May and September with peaks in late June and July. Noctule was also the second most recorded species in August 2023 although activity levels (of all species) were very low.

4.5.15 Noctule activity over TCA East was negligible with only four passes over mid-summer to early autumn.

Nathusius' Pipistrelle

4.5.16 A single Nathusius' pipistrelle pass was recorded on the remote detector in the western part of the PDZ in late May 2022 and again in August 2022. The detector was placed on the edge of scrub woodland adjoining the extensive stands of Japanese knotweed.

4.5.17 No Nathusius' pipistrelle bat activity was detected during any of the transect surveys in 2021, 2022 or 2023.

4.5.18 Nathusius' pipistrelle was not recorded in TCA West or TCA 1, and only two passes were recorded over TCA East. The site has negligible value for Nathusius' pipistrelle either for foraging or commuting.

5 BADGER AND OTTER SURVEY RESULTS

5.1 Badger

5.1.1 No fields signs were found across the survey area.

5.1.2 The habitats within each part of the site are sub-optimal for the establishment of setts because of the post-industrial nature of the site and underlying substrate.

5.1.3 In addition, the extensive regenerating scrub woodland has a very open ground flora and lacks dense cover.

5.1.4 In comparison to more natural soil conditions, the dry, stony ground would make excavation of below ground chambers difficult. Any chamber created in friable substrate would be liable to collapse.

5.1.5 Soil invertebrates including earthworms which form an important food resource for badger during part of the year would not be expected to be present in abundance within the post-industrial substrate.

5.1.6 The absence of field signs of badger activity in each area of the site indicates that this species is not resident in the site.

5.1.7 The wider Harbourside site, as a whole, has a high degree of isolation for badgers created by the coast, the open water dock and River Afan and Tata Steelworks. Features along which badger could colonise the site would be restricted to the disused railway line forming a partially vegetated corridor through the Tata Steelworks.

5.1.8 Although badgers occur very widely the absence of activity within the site is unsurprising given the degree to which the site is isolated from habitats of potential value for badges in the wider landscape.

5.2 Otter

Habitat Assessment

5.2.1 There have been several past sightings of otter from the River Afan indicating that the tidal section of this watercourse falls within the territory of an otter.

5.2.2 Otters typically have an extensive home range, and the open water dock would be easily accessible to otter from the river. Based on the presumed presence of prey populations in the open water dock is likely to be a habitat used by foraging otters.

5.2.3 Parts of the survey area are located in proximity to the open water dock and potential for terrestrial habitats to be used as resting places have been assessed, specifically: the extensive reedbed and adjoining scrub woodland south of TCA East and the localised areas of seasonally waterlogged reedbed and willow in the PDZ. These areas are possible sources of prey species and cover in the vicinity of the open water dock.

5.2.4 Otter walkover surveys and trial camara recording were carried out in these habitats to assess their use by otter.

5.2.5 The other areas within the Survey area classified as having negligible or very low potential value as daytime places of shelter. The majority of habitats in PDZ and all of habitats in TCA West lack higher value features and do not have direct connectivity to the open water dock. TCA East primarily comprises buildings and hardstanding and is subject to disturbance from their operational use. TCA1 adjoining the open water dock is sparsely vegetated ground with minimal areas of dense shelter. The strip of dense bracken and bramble at the Crown Wharf dockside is a 15m wide strip of dense herbaceous cover but is bounded by Phoenix Way which is heavily trafficked by

heavy goods vehicles throughout daytime hours and the noise and vibration from the port traffic makes this area unlikely to be used.

Walkover Surveys

5.2.6 To the south-east of TCA East, the accessible margins of the reedbed and areas of bramble thicket were subject to systematic searches for signs of regularly used mammal paths in September, October and November 2022.

5.2.7 The scrub woodland in this location is dominated by multi-stemmed willow shrubs with a field layer of open bramble vegetation. Areas of dense cover at ground level are limited to localised areas of bramble thicket. A clear mammal path was noted close to the boundary with of TCA East in September 2022 but did not enter the reedbed. No other signs of activity that could relate to otters was observed during any of the walkover surveys in this location.

5.2.8 In the PDZ the willow scrub around the stands of reed are located less than 50m from the edge of the open water dock at the closest point. Transects through the scrub woodland and around the margin of the reedbed found one clear larger (non-rabbit) mammal path on the boundary of into the PDZ adjacent to Phoenix Way. No signs of otter were recorded during searches between September 2022 and January 2023.

5.2.9 The scrub around the reed comprises multi-stemmed shrub willows with a sparse vegetation cover at ground level with very few locations in which there is sufficiently dense cover for otters to lie up during the day.

5.2.10 During a follow walkover survey in August 2023 searches the northern boundary of extensive reedbed where it adjoins TCA East. No mammal paths with the potential to be used by otter where found in the margin of the dense stands reed indicating that otters do not move through the operational yards from the open water dock.

Trial Camera Remote Recording

5.2.11 The mammal path adjacent to TCA East was covered by a trial camara for multiple weeks between September and November 2022. The path was solely used by foxes during this three-month period.

5.2.12 The mammal path on the northern boundary of the PDZ was covered by a trail camara throughout October and December. Foxes and rabbits were the recorded on the trial camera using the mammal path during this period.

6 GREAT CRESTED NEWTS

Habitat Assessment

6.1.1 There are four areas of at least seasonal open water within the Tata Steel steelworks to the south of the survey area as shown on Drawing 9 (ECO02340-0010). Descriptions and photographs of the waterbodies are presented in Appendix C.

6.1.2 W1 is an area of shallow seasonal pooling on an operational coal stockyard located 260m from the boundary of the PDZ.

6.1.3 W2 is a small area of shallow open water on the margin of an iron ore stockyard bounded a small area of grassland. The pond is located 256m from the boundary of the PDZ and is separated from it by large stockpiles and the railway sidings.

6.1.4 The two other ponds are located further from the development; W3 is equivalent to W1 a location where there is seasonal pooling in a low-lying part of an active operational yard. W4 is a site drainage ditch and holds rainwater and run-off from the blast-furnace slurry stocking area. Both W3 and W4 are located over 500m from the boundary of the PDZ.

7 DISCUSSION

7.1 Bats

7.1.1 Four species of bat were recorded in total (combined remote recording and transect surveys); common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle and noctule.

7.1.2 A very high proportion of the recorded activity was common pipistrelle, including foraging and social calling behaviour. The overall level of activity is generally low with localised areas of more regular foraging.

7.1.3 The north-eastern section of the PDZ was the most frequently used area with the streetlights along the Phoenix Way potentially attracting insect prey. The southern boundary adjoining the railway sidings subject to a variable level of use and is a flight line used by this species.

7.1.4 The results suggest soprano pipistrelle occurs in very small numbers within the site; associated with scrub edge habitats including the margin of the dock at Phoenix Wharf. In comparison the continuous scrub and extensive stands of Japanese knotweed in the PDZ and TCA East were associated with very low levels of bat activity.

7.1.5 Overall, it is considered that the northern and eastern boundaries of PDZ form a continuous feature which is an important foraging site for the local common pipistrelle population. Although there are significantly lower levels of soprano pipistrelle, the variation in activity indicates that the survey area has some value for the local population. Both species are common and will be widespread in the local area but are listed as S7 Species of Principal Importance in Wales.

7.1.6 Across all the remote recording, a single Nathusius' pipistrelle pass was recorded on the western boundary of the PDZ and the southern edge of TCA East. Nathusius' pipistrelle activity was also detected in adjacent habitats to the west of the PDZ during the surveys in the wider docks in 2021.

7.1.7 Nathusius' pipistrelle is classified as vulnerable in Wales and as a near threatened species in England and the UK. The Harbourside site, as a whole, has importance for Nathusius' pipistrelle in a local context with a known roost in the local area beyond 2km from the site.

7.1.8 The very occasional detections of noctule bat indicate bats occasionally commuting over of the site. A small proportion of the recorded activity had high repetition call rates indicating brief periods of foraging. The low number of noctule calls overall indicates the site is not frequently used by foraging noctule bats. Overall, the site is considered to have low value for noctule providing flight lines within an industrial and urban environment.

7.1.9 The level of noctule activity was consistent with assessment of the adjoining land parcels in summer 2021 and the site forms a small part of area used by this species.

7.1.10 Overall the assemblage of bat species and levels of activity have importance in the context of the site and immediate surroundings.

7.2 Reptile Species

7.2.1 Populations of three native reptile species, slow worm, grass snake and common lizard, occur within the survey area.

7.2.2 Based on a peak count of 18 adults, the PDZ supports a good population common lizard. Temporary Construction Area 2 supports a small population. The largest population of common lizard were found in these areas in the PDZ with almost all juveniles found in open grassland on the eastern side of this area. The common lizard population within the PDZ is one of a series of populations present in the wider Harbourside site.

7.2.3 Slow worm is also resident in the PDZ and in the adjoining scrub woodland outside of the site. The limited number of findings and low peak counts indicates that the population within this part of the

survey area is likely to be small. Based on the extent of suitable habitat the PDZ has the potential to support a good population. Slow worm has been found in higher numbers in scrub habitats to the west of the PDZ, where rank grassland and scrub are present alongside scrub woodland and the ground is much more undulating with various banks providing more opportunities for cover and shelter.

7.2.4 The survey has confirmed the presence of a breeding grass snake population within the PDZ and Phoenix Wharf. The areas of seasonally dry reedbed and unmanaged bracken create conditions in which eggs could be laid. Individuals recorded within the survey areas will form part of wider grass snake population with adults and sub-adults also recorded in the former mineral extraction 600m to the west of the PDZ. The 1ha reedbed and surrounding scrub habitats are likely to have importance for grass snake, which will feed on common amphibian species.

7.2.5 With all three species considered resident, they will each hibernate within or close to the PDZ. This area is largely flat with only minor surface undulations and lacks extensive banks. Features with potential value for hibernation include rabbit warrens, localised sections of banks, exposed tree roots and small mammal burrows. Parts of the PDZ have a sandy substrate and are associated with extensive rabbit warrens, most notably in the eastern and north-western parts, but rabbit burrows and other small mammal holes are widely distributed across the PDZ. Localised areas of ground are subject to a degree of waterlogging and will be unsuitable for hibernation.

7.2.6 Off-site small numbers of all three species were also found in the grassland on the margin of off-site scrub woodland.

7.2.7 The main part of the sidings comprising ballast substrate with colonising butterfly bush lacks cover Grass snake and slow worm were only found in small numbers in grassland set back from the railway tracks and ballast to the south. Reptiles are very likely to be absent from the Temporary Construction Area, which is enclosed by the open water dock, frequently trafficked port roads and large industrial operations. The sparser vegetation cover with only isolated areas of longer grass means that this area has significantly lower potential to support reptiles compared to the PDZ.

7.3 Badgers

7.3.1 The survey results indicate the absence of badger setts from the PDZ, Temporary Construction Areas and Phoenix Wharf. With no signs of foraging or dung pits it is also highly likely that these are located outside of an active badger territory.

7.4 Otters

7.4.1 Otters are a wider ranging species with a known population on the River Afan. It is likely that otters will regularly move along the tidal section of the river and may enter the open water dock. No potential laying up places or holts have been found in the survey area. There are no features within the site considered to be important to the otter population on the River Afan.

7.5 Great Crested Newts

7.5.1 The shallow areas of pooled water in the operational yards located between 250m and 300m from the PDZ have very low potential value as a habitat for great crested newts.

7.5.2 The majority of individuals within a great crested newt breeding population will occur in terrestrial habitats located in a 50m zone around the waterbody and the Tata Steel operational areas create significant barriers to movement between waterbodies and the proposed development areas.

7.5.3 If any of the waterbodies supported a breeding population, given the distances of waterbodies from the development and the degree of separation, there is negligible potential for individual great crested newts to utilise habitats within the PDZ.

8 CONCLUSIONS

8.1 Bats

8.1.1 Overall the habitats within the site have relatively low value for bats supporting a small assemblage of species.

8.1.2 Common pipistrelle was the only bat species to consistently forage in localised areas within the site. Soprano pipistrelle are generally only present in very small numbers with very little evidence of extended foraging activity indicating it is primarily a commuting route. Noctule bats generally commute over the docks / disused railway line but occasionally forage within the site. Nathusius' pipistrelle is a very occasional visitor. The level of activity and species assemblage is consistent with the findings of bat surveys undertaken for the adjoining post-industrial land within the dock; with generally very low levels of activity and more localised areas where small numbers of bats regularly forage.

8.1.3 Building B1 in TCA Easts supports an occasional summer roost of a single common pipistrelle bat, considered to be a roost of low conservation status. Three other buildings in TCA East have low value potential roost features with no roosts found in the 2023 surveys.

8.1.4 None of the shrubs within the scrub woodland had the potential to support roosting bats. An open sided car port adjoining the eastern boundary had negligible potential value for bats.

8.2 Reptiles

8.2.1 Resident breeding populations of three reptile species are present within the survey area, but with no reptiles recorded in TCA1.

8.2.2 The common lizard population is primarily associated in grassland in PDZ with further populations associated with grassland habitats across the wider docks. Slow worm was recorded in small numbers in the PDZ with a breeding population utilising the mixed scrub habitats in TCA West and adjoining habitats to the west.

8.2.3 A grass snake population is resident in Port Talbot Docks with sightings within the PDZ and Crown Wharf dockside. The sightings of sub-adults and juveniles indicates that there is a breeding population utilising the habitats within the survey area. The extensive reedbed to the south of TCA East is expected to an important feature for this species.

8.3 Badger

8.3.1 This species is considered to be absent from the survey area.

8.4 Otter

8.4.1 The use of the wider dock by otter cannot be precluded. With the close proximity to the River Afan, otter would likely traverse the docks and in particular the reedbed on the northern edge of the docks. The camera traps deployed over the survey period didn't confirm the presence of otters in the dock or within the PDZ.

8.4.2 Terrestrial habitat across the PDZ is limited with a lack of dense vegetation cover with patchy, open structured grassland and Japanese knotweed stands. It is unlikely with the lack of available habitat in the PDZ, lack of evidence of otter field signs and camera trap results that otter use the PDZ.

8.5 Great Crested Newts

8.5.1 The closest past record of great crested newt to the survey area is from a waterbody 1.2km to the south, within Tata Steelworks. Closest waterbodies to the site are seasonal and unvegetated, located within actively trafficked operational areas. They have very poor suitability for great crested newts and there is poor terrestrial habitat connectivity between the ponds and the survey area. It is concluded that there is negligible potential for individual great crested newts to utilise habitats within the PDZ.

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DRAWINGS

Drawing 1	Development Areas
Drawing 2	Harborside Site Areas Plan
Drawing 3	Reptile Survey - Refuge Plan
Drawing 4	Reptile Survey Results
Drawing 5	Building Location and PRA Results Plan
Drawing 6	Bat Transect Surveys Plan
Drawing 7	Static Bat Detector Locations 2021 to 2023.
Drawing 8	Otter Survey Plan
Drawing 9	GCN Scoping Survey Plan

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Legend

Application Boundary

Rev	Description	By	CB	Date

MAKING COMPLEX EASY

20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
T: +44(0)1235 821 888 E: rpsox@rpsgroup.com

Client: LanzaTech UK Limited

Project: Project Dragon SAF Production Facility

Title: Development Areas

Status	Drawn By	PM/Checked By
ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:3,900	SEP 2023

Figure Number	Rev
1	-

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2021 Survey Areas

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Project: Project Dragon SAF Production Facility

Title: Harbourside Survey Areas

Status	Drawn By	PM/Checked By
Final	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:4,500	SEP 2023

Figure Number	Rev
2	**1**

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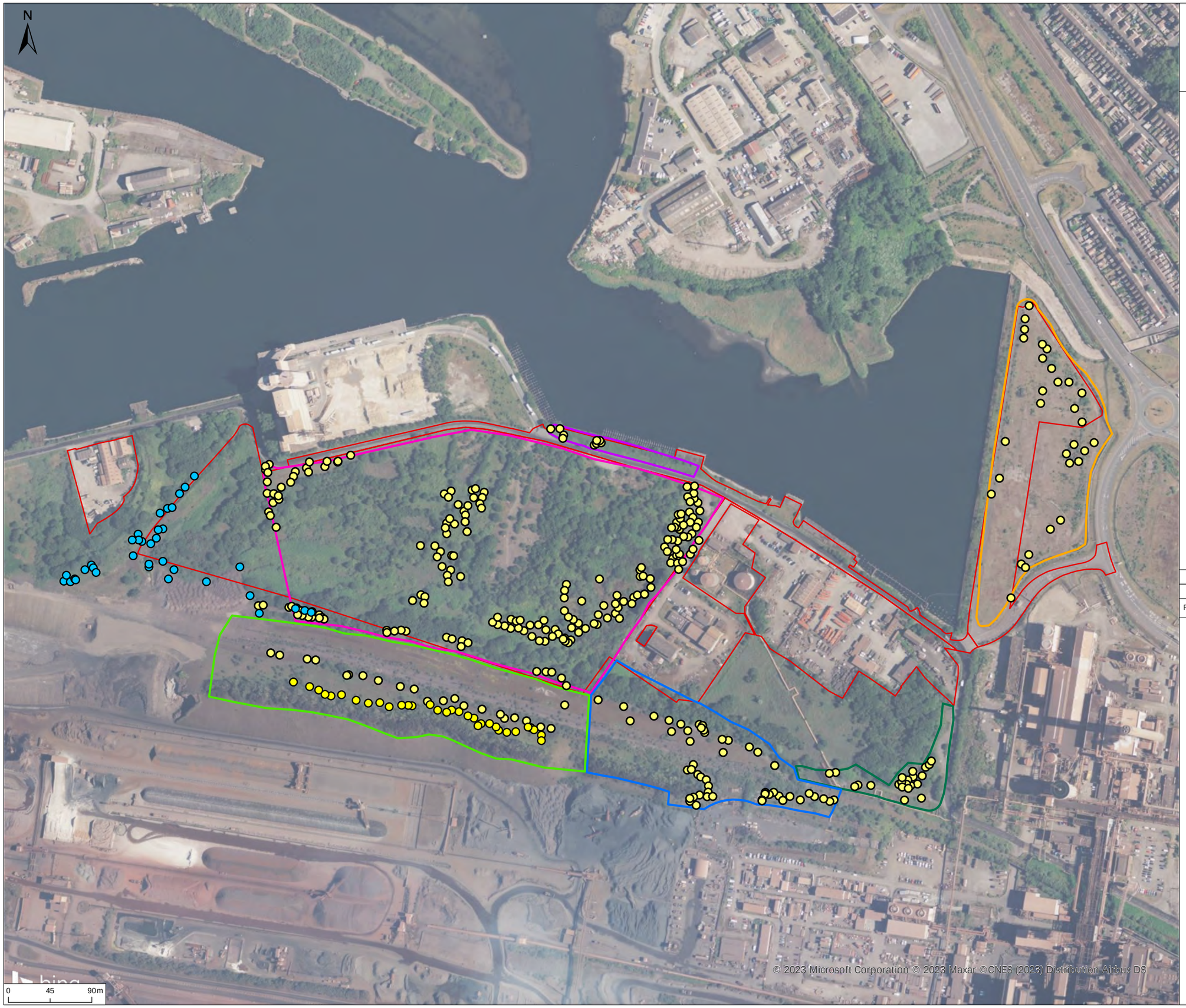

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Legend

Reptile Survey Area
- Laydown Adjoining Railway Sidings
- Temporary Construction Area 1 (TCA1)
- Production Development Zone (PDZ)
- Crown Wharf
- Railway Sidings East
- Railway Sidings West
- 2022 Set out reptile sheets
- 2021 Set out reptile sheets

Rev	Description	By	CB	Date

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Atholl Exchange, 1st Floor, 6 Canning Street, Edinburgh EH3 8EG
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Project: Project Dragon SAF Production Facility

Title: Reptile Survey Refuge Plan

Status	Drawn By	PM/Checked By
ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:3,900	SEP 2023

Figure Number	Rev
3	**-**

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Legend

- Application Boundary

Survey Areas

- Land adjoining Railway Sidings
- Temporary Construction Area 1 (TCA1)
- Production Development Zone (PDZ)
- Crown Wharf
- Railway Sidings East
- Railway Sidings West

2022 Reptile Results

- Common lizard, Adult
- Common lizard, Juvenile
- Grass snake, Adult
- Grass snake, Juvenile
- Grass snake, Sub-adult
- Slow worm, Adult
- Slow worm, Juvenile
- Slow worm, Sub-adult

2021 Reptile Results

- Slow worm, Adult
- Slow worm, Juvenile
- Slow worm, Sub-Adult

Rev	Description	By	CB	Date

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Client: LanzaTech UK Limited

Project: Project Dragon SAF Production Facility

Title: Reptile Survey Results

Status	Drawn By	PM/Checked By
ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:4,000	OCT 2023

Figure Number	Rev
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Legend

- Site Boundaries
- Building with Low Bat Roost Suitability
- Building with Negligible Bat Roost Suitibility
- Inaccessilble Area
- Common Pipistrelle Emergence

Rev	Description	By	CB	Date

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Client: LanzaTech UK Limited

Project: Project Dragon SAF Production Facility

Title: Building Location and PRA Results Plan

Status	Drawn By	PM/Checked By
ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:1,250	SEP 2023

Figure Number: 5

Rev: 1

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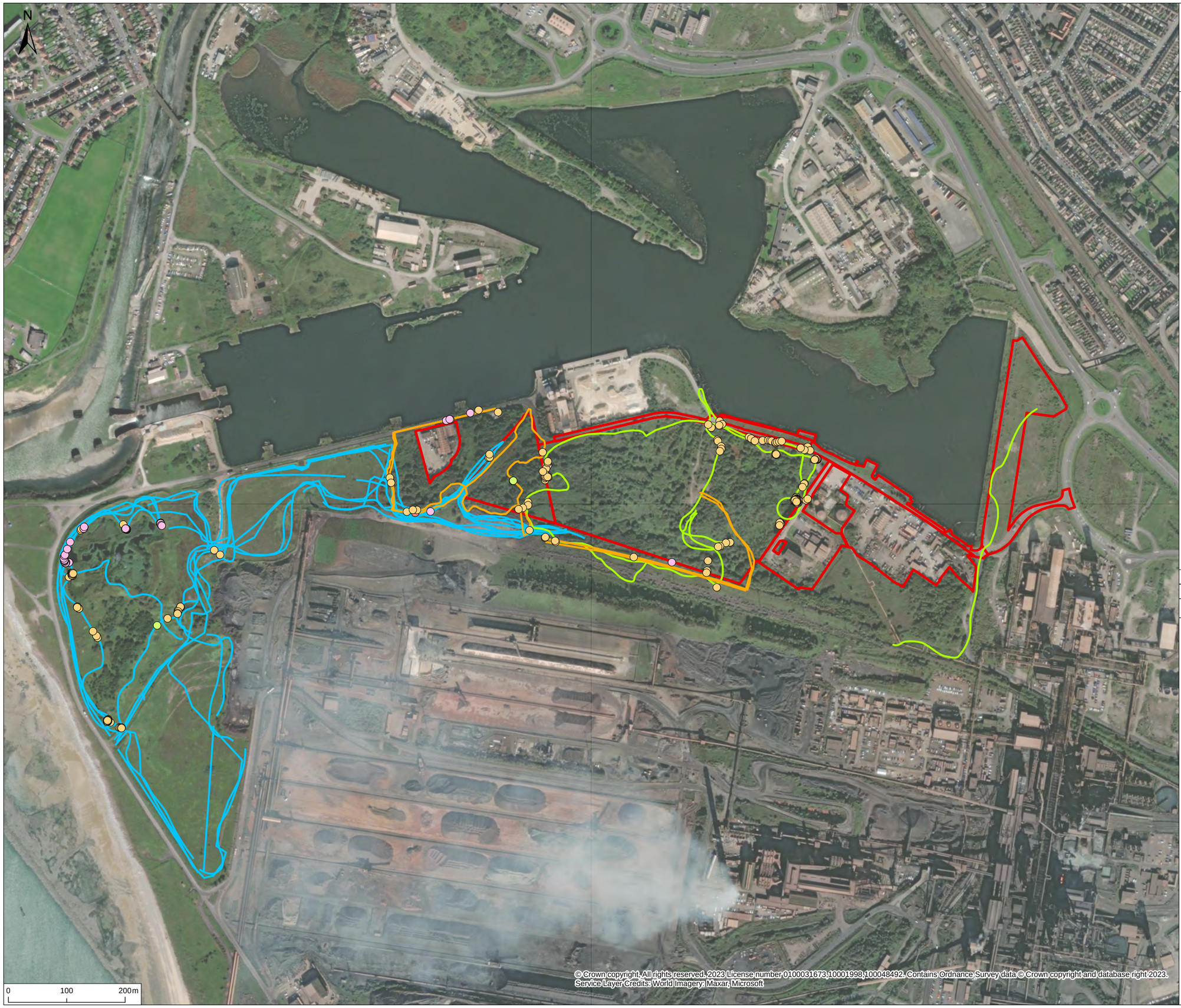

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Application Boundary

Bat species
- N.pec
- N.noc
- M.spe
- P.pyg
- P.pip

Bat transect lines
- 2023 Bat Transect Route
- 2022 Bat Transect Route
- 2021 Bat Transect Route

Rev	Description	By	CB	Date

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Client: LanzaTech UK Limited

Project: Project Dragon SAF Production Facility

Title: Bat Transect Surveys Plan

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ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
ECO02340	1:6,200	SEP 2023

Figure Number	Rev
6	**1**

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Legend

- Application Boundary

Bat Detector locations 2022

- May 2022
- July 2022
- August 2022
- June 2022 (1 night only)

Bat Detector locations 2021

- May, June 2021
- May, June, July, August 2021
- July, August 2021

Rev	Description	By	CB	Date

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Client: LanzaTech UK Limited

Project: Project Dragon SAF Production Facility

Title: Bat Static Detector Locations

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ISSUE	OW	PT
Project Number	**Scale @ A3**	**Date Created**
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Figure Number	Rev
7	1

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