

PHASE 2 SPECIES SURVEY REPORT 2022

Project Dragon, Port Talbot



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REPORT

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Contents

1	INTRODUCTION	3
1.1	Purpose and scope of this report	3
1.2	Other Species Surveys and Report.....	4
1.3	Study area and Zone of Influence	4
1.4	Previous Species Surveys	4
	Production Development Zone.....	4
	Wider Harbourside Landholding	5
2	METHODS.....	7
2.1	Bats	7
	Activity Survey.....	7
	Static Remote Recording	7
2.2	Reptile Survey	8
2.3	Badger Survey.....	10
2.4	Otter Survey	10
	Remote Camera Recording	10
2.5	Limitations	11
	Production Development Zone – All surveys	11
	Bat Activity Transect Surveys	11
	Static Detector Recording	11
	Reptile Surveys	11
	General Limitations of Ecological Surveys.....	11
	Accurate Lifespan of Ecological Data	12
3	BAT SURVEY RESULTS	13
3.1	Activity Transect Surveys.....	13
3.2	Remote Recording (Static Detectors)	13
3.3	Bat Species Distribution	16
	Common Pipistrelle	16
	Soprano Pipistrelle	16
	Noctule	16
	Nathusius' Pipistrelle.....	17
4	REPTILE SURVEY RESULTS.....	18
	Overall Distribution	18
	Common lizard	18
	Slow worm.....	19
	Grass snake	20
5	BADGER AND OTTER SURVEY RESULTS	21
5.1	Badger	21
5.2	Otter	21
	Habitat Assessment	21
	Walkover Surveys	22
	Trial Camera Remote Recording	22
6	GREAT CRESTED NEWTS.....	23
	Habitat Assessment	23
7	DISCUSSION	24
7.1	Bats	24
7.2	Reptile Species	24
7.3	Badgers	25
7.4	Otters.....	25

7.5	Great Crested Newts.....	25
8	CONCLUSIONS	27
8.1	Bats	27
8.2	Reptiles	27
8.3	Badger.....	27
8.4	Otter	27
8.5	Great Crested Newts.....	28
	REFERENCES	29

Tables

Table 2.1: Weather conditions during bat transect surveys

Table 2.2: Remote recording analysis dates 2022

Table 2.3 Reptile survey visits - Survey areas

Table 3.1: Bat activity levels recorded during transect surveys

Table 3.2: Bat activity levels recorded on remote detectors deployed in PDZ & Phoenix Wharf

Table 3.3: Bat activity levels recorded on remote detectors in Temporary Construction Areas

Table 4.1: Common lizard survey results

Table 4.2: Slow worm survey results

Table 4.3: Grass snake survey results

Drawings

Drawing 1 Survey Areas (ECO02340-0003-01)

Drawing 2 Bat Static Detector Locations (ECO02340-0005)

Drawing 3 Bat transect and activity plan (ECO02340-0006)

Drawing 4 Bat activity heat map PDZ (ECO02340-0007)

Drawing 5 Reptile Refuge Mats (ECO02340-0001-01)

Drawing 6 Reptile Results (ECO02340-0002-01)

Drawing 7 Waterbody Location Plan (ECO02340-0010)

Appendices

Appendix A Waterbody Descriptions and Photographs

1 INTRODUCTION

1.1 Purpose and scope of this report

- 1.1.1 RPS were commissioned by LanzaTech to undertake Phase 2 surveys for relevant species groups for land parcels within Port Talbot Docks.
- 1.1.2 The Project Dragon Survey area comprises the following land parcels defined by the Survey area Boundary shown on Drawing 1 (ECO02340-0003-01) with the central Ordnance Survey grid references provided below.
- Production Development Zone – approximately 9.5ha (SS 764886)
 - Phoenix Wharf – terrestrial habitats approximately 0.3ha (SS 765887)
 - Temporary Construction Area 1 – approximately 3.2ha (SS 770887)
 - Temporary Construction Area 2 – approximately 1ha (SS 768884)
 - Railway sidings
- 1.1.3 Based on existing knowledge of the site and the findings of previous species surveys it was understood that the site either supported or had the potential to support several species of principal importance in Wales which are legally protected.
- 1.1.4 This report provides the results of the following species surveys undertaken between the end of May and September 2022. These surveys assessed the likely presence or absence of these species on site, and if present to ascertain the ways in which the local populations are utilising the site:
- Seasonal bat activity transect surveys
 - Remote bat recording survey
 - Reptile presence/absence survey
 - Badger sett and activity survey
 - Otter presence/absence survey
 - Great crested newt scoping survey
- 1.1.5 An Ecological Impact Assessment is being prepared for the development proposal and the species surveys have been used to help define the presence/absence of species that will need to be considered in assessment process.
- 1.1.6 This report presents the factual findings of the listed Phase 2 surveys completed in 2022. An evaluation of the site's value for relevant species groups is given 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).

1.2 Other Species Surveys and Report

- 1.2.1 Other Phase 2 surveys completed in 2022 are reported separately.
- 1.2.2 A specialist bryophyte survey of all accessible parts of Survey area which was carried out in October 2022 and is presented in a stand alone report.
- 1.2.3 Overwintering bird activity on the open water dock focussing on Phoenix Wharf and Margam Wharf is being recorded overwinter 2022/2023 during monthly surveys. Monthly overwintering bird survey visits covering the Production Development Zone in winter 2021/2022, which was part of a wider survey covering the whole of the Harbourside landholding. The results of this survey are presented in a stand alone breeding and wintering bird survey report.

1.3 Study area and Zone of Influence

- 1.3.1 The Production Development Zone (PDZ) lies at the eastern end of the Harbourside site within Port Talbot Docks, comprising primarily naturally regenerating willow scrub and grassland with extensive areas of Japanese knotweed. A 4m high embankment rises up to the level of the railway sidings to the south.
- 1.3.2 The PDZ forms the eastern section of Harbourside site within Port Talbot Docks, which as a whole comprises an extensive area of previously developed land that is naturally regenerating with the main component habitats being willow scrub, grassland, and ephemeral vegetation with localised areas of bare ground.
- 1.3.3 An unnamed port road forms the northern boundary PDZ with a Tarmac works and open water dock to the north and further operational industrial units to the east.
- 1.3.4 Phoenix Wharf lies on the side of the open water dock to the north of the eastern half of the PDZ. This part of the Survey area is a narrow strip of vegetation between the road and the dock.
- 1.3.5 Temporary Construction Area 1 (known as Margam Wharf) is located at the eastern end of the open water dock over 250m east of the boundary of the PDZ.
- 1.3.6 Temporary Construction Area 2 is located over 200m east of the PDZ separated from it by operation industrial sites a 1.2ha reedbed bounded by willow scrub.
- 1.3.7 The immediate context of the Survey area is dominated by industrial activities with the very extensive Tata Steel works to the south, and operational industrial sites, within ABP land ownership, adjoining the eastern boundary of the PDZ.
- 1.3.8 The open water dock is bounded by the associated wharfs and has some extensive stands of reedbed on the margins. The tidal section of the River Afan running to the north-west of the dock. An operational harbour enclosed by breakwaters lies 1km to the west of the PDZ beyond the wider Harbourside site.

1.4 Previous Species Surveys

Production Development Zone

Habitats

- 1.4.1 A Phase 1 Habitat survey of the wider Harbourside Site (including part of the Survey area Boundary was undertaken in summer 2021 and updated in summer 2022. The results are presented in the baseline section of Ecological Impact Assessment (EclA).

Wider Harbourside Landholding

- 1.4.2 A series of species surveys were undertaken from the western and central areas of the Harbourside site in 2021 covering the following species / species groups: foraging bats, breeding birds, wintering birds, great crested newts, reptiles, invertebrates, otter, water vole and badger. Previously a reptile survey had been completed within the former mineral extraction in the eastern part of the Harbourside site in May 2015. The findings of the previous surveys of bat activity, reptile, great crested newt, badger and otter are summarised below.

Bats

- 1.4.3 Surveys in 2021 recorded only low levels of bat foraging activity in the habitats across the Harbourside site. Most of the recorded activity related to common and soprano pipistrelle with the edges of the blocks of willow scrub being used by bats moving through the landscape. The former mineral extraction and reedbed/waterbody was the feature most regularly used by foraging bats.
- 1.4.4 Regular but low level noctule activity was recorded on the western boundary of the PDZ indicating the possible use of the disused railway line as a commuting flight line. A very small number of passes of Nathusius' pipistrelle and a single Myotis species pass were also recorded over the whole of the summer survey period.

Reptiles

- 1.4.5 The Harbourside site supports three resident reptile species: common lizard, slow-worm, grass snake and slow-worm. Across the c33ha Harbourside site as a whole, the habitats support an exceptional population of common lizard (multiple good populations) with the populations primarily associated with open structured grassland habitats. A good population of slow-worm population is concentrated on the rank grassy edges of scrub habitats including bramble and willow. Small number of sub-adult grass snake was found in the former extraction and the adjoining grassy banks. There were also very occasional ad hoc sightings of adult grass snakes around the margins of the reedbed / waterbody in the base of mineral extraction.

Great crested Newts

- 1.4.6 Past surveys have concluded that GCN are absent from the Harbourside site based on environmental DNA (eDNA) survey and traditional population surveys.
- 1.4.7 The reedbed/waterbody in the former mineral extraction, (located 650m west of the boundary of PDZ) was surveyed in spring 2021 and 2019. Due to the size of the waterbody with multiple areas of open water partially separated by stands of reed each accessible area of open water was individually tested for GCN DNA.
- 1.4.8 The small man-made pond situated directly below the artificial sand martin bank was also subject to eDNA testing in spring 2022. This waterbody lies 380m from the boundary of the PDZ.

Badger and Otter

- 1.4.9 The surveys confirmed the very likely absence of badgers in the western and central sections of the Harbourside site with no evidence of foraging activity, dung pits or setts.
- 1.4.10 No signs of otter activity were recorded around the reedbed/waterbody or on the trail cameras positioned on mammal paths on the margins. It was concluded that the value of this feature as a foraging resource for otter is limited, but because the reedbed is located close to the mouth of the River Afan, there is potential for occasional use by otter.

- 1.4.11 Foxes were regularly seen within the site with a number of paths running through the site. Fox was the only mammal recorded on the trail cameras.

2 METHODS

2.1 Bats

Activity Survey

- 2.1.1 Bat activity transect surveys were undertaken, the purpose of which were to record and assess how bats were utilising the site for foraging and commuting. The transect surveys were focussed on the PDZ, the main development area. Surveys were carried out monthly between late May 2022 and mid-September 2022. The dates and times of the activity surveys are summarised in Table 2.1. All activity surveys were conducted in suitable weather conditions.
- 2.1.2 Each of the surveys was carried out by a team of two experienced bat surveyors, equipped with a Batlogger M detector. A transect route was devised along a route 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.
- 2.1.3 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.
- 2.1.4 Several point counts were undertaken at regular intervals along the transect, where the surveyors stopped and recorded all bat activity over four-minute periods. All detected calls were analysed using Bat Explorer software.

Table 2.1: Weather conditions during bat transect surveys at Production Development Zone

Survey date	Temperature at sunset (°C)	Sunset time	Precipitation	Wind (Beaufort scale: 0-12)	Cloud cover (Oktas: 0-8)
15/06/2022	16	21:34	Dry	1 – light air	0 – no cloud
18/07/2022	25	21:25	Dry	1 – light air	7 - overcast
15/09/2022	15	19:30	Dry	1 – light air	2 – little cloud cover

Static Remote Recording

- 2.1.5 Transect surveys were supplemented by remote recording on automated ultrasound bat detectors which gave a more extensive image of the geographical species coverage across the site and captured bat activity outside of the time constraints of the transect surveys.
- 2.1.6 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 throughout spring, mid-summer, and late summer. This would ensure that we captured recordings from at least 5 nights which were recorded in suitable weather conditions. The results of the transect surveys were used to influence the placement of the remotely sited static detectors during the latter half of the survey.
- 2.1.7 The locations of remote static detectors are illustrated in Drawing 2: Remote Static Detector Locations (ECO02340-0002-01).

REPORT

- 2.1.8 In each season, five-night recording periods were selected for analysis, coinciding with optimal weather conditions derived from weather data from <https://www.timeanddate.com/weather/uk>. The analysis periods are provided in Table 2.2 below
- 2.1.9 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 2.2: Remote recording analysis dates 2022

Detector ID	Season	What 3 Word	Duration	Dates Analysed
A	Spring	///chats.dollar.major	> 10 Nights	N/A
B	Spring	///toolbar.booklets.plotted	> 10 Nights	20/05/2022 – 25/05/2022
C	Spring	///cavalier.concerts.wiring	> 10 Nights	20/05/2022 – 25/05/2022
D	Mid-summer	///speeding.converter.youths	1 Night	22/06/2022
E	Mid-summer	///basket.risky.eventful	1 Night	22/06/2022
F	Mid-summer	///toned.dock.tree	1 Night	22/06/2022
G	Mid-summer	///thank.vessel.shrimp	> 10 Nights	20/07/2022 – 25/07/2022
H	Mid-summer	///rejoin.spelled.adapt	> 10 Nights	20/07/2022 – 25/07/2022
I	Mid-summer	///ramp.amounting.laser	> 10 Nights	20/07/2022 – 25/07/2022
J	Late summer	///idea.afflicted.influencing	> 10 Nights	01/09/2022 – 06/09/2022
K	Late summer	///button.squad.assure	> 10 Nights	01/09/2022 – 06/09/2022
L	Late summer	///dust.soak.drag	> 10 Nights	01/09/2022 – 06/09/2022

2.2 Reptile Survey

- 2.2.1 The reptile survey was carried out in accordance with the recommended methodology outlined in the Herpetofauna Workers' Manual (JNCC, 2003) and the Froglife Advice Sheet 10 (1999). The surveys were undertaken between June and October.
- 2.2.2 Prior to setting out the refuges a visual assessment was carried out to define for each of the areas subject to reptile survey and areas of hibernation potential within the PDZ were mapped.
- 2.2.3 With extensive suitable habitat across the large site, the placement of mats was designed to cover the highest value habitats with each refuge mat placed in habitats with the potential to support a population of at least one species of reptile.
- 2.2.4 The refuge mats provide shelter and basking opportunities and are typically used at the start and end of the day especially in spring and early autumn when the daytime temperatures are lower, and individuals will need to bask to be able to hunt prey.
- 2.2.5 The mats were placed to have an aspect that would receive sun in the morning and where possible, mid-afternoon onwards.
- 2.2.6 The distribution of refuges was designed to achieve a reasonable distribution across the whole site. Within the PDZ the refuges specifically covered focussed on the grassy edges of scrub woodland, mosaics of open and dense grassland and the grassland glades within the scrub woodland. Mats were placed on the margins of Japanese knotweed stands but were not placed in the centre of these stands or beneath the canopy of the scrub willow.

- 2.2.7 Wherever possible the mats were located close to dense vegetation cover, although much of the scrub willow has a very sparse understorey and some mats were placed in areas with limited cover in order to achieve a wider distribution across on PDZ.
- 2.2.8 In total 412 refuge mats were set out across the site in August 2022. The refuge mats were placed out across accessible locations within the PDZ (190), in the habitat strip alongside Phoenix Wharf (10), Temporary Construction Area 1 (30) and Temporary Construction Area 2 (22).
- 2.2.9 An additional refuge mats (160) placed out on the railway sidings south of the PDZ in late August 2022. The distribution of the refuge mats is shown on Drawing 5.
- 2.2.10 Each refuge mat consisted of a rectangle of bitumen roofing felt measuring a minimum of least 50 cm x 50 cm. The felt mats were supplemented with 24 (No.) 50cm x 50cm corrugated tins which were primarily selectively placed around the trees and scrub habitat in the eastern and western sections of the production development zone.
- 2.2.11 The refuge mats were left to bed down for over four weeks before the first survey visit was undertaken. This ensured the vegetation below the mat had died back and that the ground beneath the mats would have developed humidity and temperature gradients favoured by reptiles. The bedding down period also allows individuals to locate and use mats placed in or close to their territory.
- 2.2.12 Due to the size of the site, survey visits (excluding the sidings area) were undertaken across 10 survey visits primarily completed between late August and early October. The sidings were surveyed over seven visits between early and late October.
- 2.2.13 A combination of mid-late afternoon and morning surveys were employed where the daytime air temperature was between 12 and 19° C with relatively light wind. Sunny conditions were selected wherever possible. Different areas of the site were surveyed on each date so that the refuge mats were checked during optimum weather conditions. The dates of the survey visits and areas covered are provided in Table 2.1.

Table 2.3 Reptile survey visits - Survey areas

Survey No.	Date	Production Development Zone	Railway Sidings East and West	Temporary Construction Area 2	Temporary Construction Area 1	Phoenix Wharf
1	31/08/22	✓	-	✓	✓	✓
2	13/09/22	✓	-	✓	✓	✓
3	15/09/22	✓	-	✓	✓	✓
4	16/09/22	✓	-	✓	✓	✓
4	20/09/22	✓	-	✓	✓	-
5	22/09/22	✓	✓	✓	✓	✓
6	26/09/22	✓p	-	-	-	-
7	28/09/22	✓	✓	✓	-	✓
8	06/10/22	✓	✓	✓	✓	-
9	11/10/22	✓	✓	-	-	✓
10	13/10/22	-	✓	-	-	-
11	18/10/22	-	✓	-	-	-
12	20/10/22	-	✓	-	-	-
TOTAL NO.		9	7	8	7	7

- 2.2.14 During each visit all the refuge mats were checked for the presence of reptiles by the surveyor.

- 2.2.15 The mats and other areas of potential basking areas including boulders, and rocks were checked from a distance for the presence of reptiles using binoculars whilst walking between refuge mats.
- 2.2.16 All observed reptiles were recorded. Where observation allowed the sex and age class (juvenile or adult) was recorded.

2.3 Badger Survey

- 2.3.1 During walkover habitat surveys in June and July 2022, the different parts of the Survey area, searches were made for signs of badger activity 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.
- 2.3.2 During the reptile survey visits in September, 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 initial review was undertaken to assess the potential value of each section of the Survey area for otter and an overall assessment of the potential of terrestrial habitats in each section of the Survey area to be used by otter was defined.
- 2.4.2 Areas were excluded from the survey included Temporary Construction Area 1 due to being sparsely vegetated ground and the disused railway sidings / railway line due to its distance from the open water dock.
- 2.4.3 Walkover surveys of Temporary Construction Area 2 and PDZ were conducted between September 2022 and January 2023. Each walkover survey visit was conducted during dry weather conditions when there was good visibility, avoiding strong winds and heavy rain.
- 2.4.4 All 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 dense reed, the margins were searched for signs of clear mammal paths large enough to be used by otter.
- 2.4.5 Alongside the identification of mammal paths with the potential to be used by otter, 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.
- 2.4.6 The terrestrial habitat survey assessed the potential for features 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. Couches can sometimes consist of no more than an area of flattened grass or earth. Features associated with otter holts include tunnels in banks, cavities beneath tree root-plates, and cavities in man-made structures such as disused drainage pipes.

Remote Camera Recording

- 2.4.7 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 northern boundary of Temporary Construction Area 2. 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.
- 2.4.8 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 Limitations

Production Development Zone – All surveys

- 2.5.1 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.

Bat Activity Transect Surveys

- 2.5.2 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.

Static Detector Recording

- 2.5.3 Due to the public and industrial nature of the site and the high levels of footfall across the site, it was necessary to secure the recording equipment in positions that were out of reach and relatively obscure, in order to reduce the likelihood of them being subject to theft or vandalism. Particularly when the detectors were placed within hedgerow or treelines this meant that they were covered in more foliage than would normally be considered optimal.
- 2.5.4 The detector placed on the woodland edge close 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.

Reptile Surveys

- 2.5.5 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.
- 2.5.6 Changes in weather conditions during survey visits required transects/mat checks to be temporarily halted on several occasions.
- 2.5.7 One survey (26th September) was stopped with only part coverage of the PDZ with the reminder of the survey areas covered during the replacement survey visit. Overall good coverage the whole site was achieved over the extended period of survey visits.

General Limitations of Ecological Surveys

- 2.5.8 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

- 2.5.9 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject.
- 2.5.10 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 BAT SURVEY RESULTS

3.1 Activity Transect Surveys

- 3.1.1 Two species of the 18 resident British bat species were recorded within the Survey area (excluding the disused railway line) during the transect surveys and/or remote recording: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle and noctule.
- 3.1.2 A summary of the activity recorded during transect surveys is presented in Table 3.1. The areas of bat activity during the transect surveys are illustrated on Drawings 3 and 4 (ECO02340-0006 and ECO02340-0007).

Table 3.1: Bat activity levels recorded on transect surveys

Season	Passes per species – Total				Total no. of passes
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Noctule	
Spring	58	0	0	0	58
Mid-summer	22	0	0	0	22
Late summer	39	1	0	0	40

- 3.1.3 Across the transect surveys, all but one of the detections of bat activity related to common pipistrelle bats with only a single bat pass of a soprano pipistrelle. The majority of activity was associated with the north-eastern and eastern parts of the PDZ with extended periods of foraging for a small number of bats.
- 3.1.4 Only low levels of bat activity (occasional, infrequent commuting passes) were recorded in the centre of the PDZ with no areas being used for extended foraging. Each transect survey also included point counts in Temporary Construction Areas. Common pipistrelle was very rarely encountered in the Temporary Construction Area 1 and no bat activity was detected during transect surveys in Temporary Construction Area 2.

3.2 Remote Recording (Static Detectors)

- 3.2.1 A summary of the level of activity recorded on remote detectors deployed in PDZ and Phoenix Wharf is presented in Table 3.3. 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.
- 3.2.2 Two locations in July had noticeably higher levels of activity indicating that the detectors were located within common pipistrelle foraging habitat. These were in mixed species scrub on the eastern boundary where there is shelter from a line of conifer trees where there was an average of

185 calls/night and on the southern boundary of the PDZ where the scrub woodland adjoins the railway sidings with an average of 120 calls per night.

- 3.2.3 Remote recording in Phoenix Wharf 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.
- 3.2.4 Nathusius' pipistrelle bat was remoted on only one detector over the full survey, with single confirmed pass on the western boundary of the PDZ on the scrubby boundary adjoining a very extensive stand of Japanese knotweed.
- 3.2.5 Noctule bats were consistently recorded at low frequency on remote detectors.

Table 3.2: Comparison of bat activity levels recorded on remote detectors

Season	Remote Detector ID	Habitat location	Average passes per night over 5 day recording period			
			Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Noctule
Spring	A*	North-western part of PDZ; scrub woodland adjacent to semi-improved naturally regenerating grassland in	-	-	-	-
	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
Mid-summer	G	Phoenix Wharf, 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
Late summer	K	Phoenix Wharf – 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

Average number of passes per night	58.82	4.09	0.03	1.22
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* Detector A recorded only noise throughout the survey duration due to the proximity of the detector to the unnamed port road

- 3.2.6 Detectors were placed out in two locations in Temporary Construction Area 1 for the duration of the mid summer transect to provide point count data over the entire survey visit. A 5-day period of remote recording was undertaken in late summer.
- 3.2.7 The results of the remote recording indicate that levels of bat activity in this location are typically low but there is some variation. Common pipistrelle foraging activity was recorded around the scattered scrub in the eastern part in mid summer with 63 calls detected during the overnight recording period. In comparison, an average of less than 8 calls per night were detected in the same location during the 5-day recording period in late summer.
- 3.2.8 A low level of noctule bat activity was also noted on the remote detector in Temporary Construction Area 1 in late summer with an average of 5 calls per night and in Temporary Construction Area 2, adjacent to the railway line and extensive reedbed. The distribution of the calls over the night indicates a small number of bats commuting over the site.

Table 3.3: Bat activity levels recorded on remote detectors in Temporary Construction Areas

Detector ID	Habitat location	Average passes per night over 5 day recording period			
		Common pipistrelle	Soprano pipistrelle	Nathusius pipistrelle	Noctule
Temporary Construction Area 2 (D) – overnight mid summer	Southern boundary of scrub woodland (north of the disused railway line)	5	1	0	2
Temporary Construction Area 1 (E) – overnight mid summer	Bramble and scattered scrub on eastern side of area	63	1	0	0
Temporary Construction Area 1 (F) – overnight mid summer	Sparsely vegetated bare ground and scattered scrub	5	0	0	0
Temporary Construction Area 1 (J) – 5 days recording late summer	Scrub adjacent to Margam Wharf dockside	7.8	0.6	0.2	5.8

3.3 Bat Species Distribution

Common Pipistrelle

- 3.3.1 Common pipistrelle was the most frequently encountered species during all surveys carried out making 92.72% of calls recorded during the static recording and transect surveys. Calls from common pipistrelle were recorded on all static detectors and on all three transect surveys.
- 3.3.2 The highest levels activity common pipistrelle activity was recorded on the eastern side of PDZ with foraging and commuting behaviour recorded in the north-eastern part of PDZ with social calling behaviour also recorded. This area comprises scrub edge, open grassland, bramble and gorse scrub. The highest number of bat passes was recorded on the remote detector deployed on the eastern boundary where it was situated in a location where there are extended periods of foraging.
- 3.3.3 Common pipistrelle foraging activity was also observed along the unnamed port road between the Phoenix Wharf and the PDZ during the mid-summer transect survey. Individual common pipistrelle were seen foraging up and down the road, with multiple bats observed foraging around streetlights close to the lay-by on the northern boundary of the PDZ.
- 3.3.4 More frequent common pipistrelle activity was also noted on the remote detector placed on the edge of the scrub woodland southern boundary of the PDZ. During the transects/point counts, commuting bat passes were generally only rarely recorded in this location with the observed bats generally flying from west to east.
- 3.3.5 The results suggest the linear woodland feature as a commuting route with variation in the level of use between nights, influenced by environmental conditions such as stronger winds with the trees creating more sheltered conditions. A similar result was obtained for Temporary Construction Area 1 with no activity during the transects, and typically very low levels of per night but with higher levels of activity recorded overnight in mid summer.
- 3.3.6 Very low levels of activity were recorded during transects and on the remote recorder in Temporary Construction Area 2.

Soprano Pipistrelle

- 3.3.7 Soprano pipistrelle was the second most recorded species on the static detectors; accounting for 6% of all the recorded bat activity. Soprano pipistrelle calls were recorded in low number on all the remote detectors placed out in mid and late summer, but typically with an average of less than 2 passes were detected per night.
- 3.3.8 In comparison, there were no detections in spring when the remote detectors were placed in the western and southern parts of the PDZ.
- 3.3.9 Soprano pipistrelle activity was much lower than common pipistrelle, but activity was regularly recorded on detectors placed in the northern boundary of PDZ.
- 3.3.10 Notably higher levels of soprano pipistrelle were detected on the remote detectors deployed in Phoenix Wharf (close to the open water dock) in late summer with an average of 24 passes per night. The recordings included social calling and indicated the presence of more than one bat.

Noctule

- 3.3.11 Noctule were recorded occasionally throughout the site and was the third most common species with 1.1% of the total calls recorded during the remote recording surveys.

- 3.3.12 Occasional noctule passes were recorded on detectors placed in the Temporary Construction Areas 1 and 2 with a maximum average of under 6 passes per night. Low level noctule commuting activity was recorded on the detector placed close to the open water dock in Temporary Construction Area 1 in late summer (detector 'J'). Noctule bats call were also recorded on Phoenix Wharf (detector 'K') at the same time. Noctule bats commuting over the dock could have been recorded on both detectors.

Nathusius' Pipistrelle

- 3.3.13 A single Nathusius' pipistrelle pass was recorded on the remote detector in the western part of the PDZ in late May. The detector was placed on the edge of scrub woodland adjoining the extensive stands of Japanese knotweed.
- 3.3.14 No Nathusius' pipistrelle bat activity was detected during any of the transect surveys.

4 REPTILE SURVEY RESULTS

Overall Distribution

- 4.1.1 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.
- 4.1.2 The results of the reptile survey are presented in the context of different sections of the survey area; PDZ, Phoenix Wharf, and Temporary Construction Areas. The railway sidings was also included in the reptile survey. This was 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 line.

Common lizard

- 4.1.3 A common lizard population was primarily recorded in the PDZ with a peak count of 18 adults was recorded in late September. 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 Phoenix Wharf on one occasion.
- 4.1.4 Temporary Construction Area 2 had confirmed presence of both adults and juveniles. The peak of one was recorded on four of the eight survey visits.
- 4.1.5 Most of this area is heavily shaded and has very low suitability for common lizard, but the south-eastern corner includes small areas of grassland and ephemeral vegetation. Based on habitat extent the potential carrying capacity of this area will be low.
- 4.1.6 No common lizards were found on the railway sidings, which comprised large expanses of bare ground and ephemeral vegetation, or in Temporary Construction Area 1 which generally lacks areas of cover.

Table 4.1: Common lizard survey results

Date	PDZ	Railway Sidings East	Railway Sidings West	Temporary Construction Area 2	Temporary Construction Area 1	Phoenix Wharf
31/08/2022	1 adult, 1 juvenile	-	-	0	0	0
13/09/2022	12 adults, 1 juvenile	-	-	1 adult	0	0
15/09/2022	8 adults, 1 juvenile	-	-	0	0	0
16/09/2022	9 adults	-	-	1 adult, 1 juvenile	0	0
20/09/2022	4 adults, 1 juvenile	-	-	1 adult	0	-
22/09/2022	7 adults, 4 juveniles	0	0	0	0	0
26/09/2022	2 adults, 1 juvenile	-	-	-	-	0
28/09/2022	18 adults, 6 juveniles	0	0	1 adult	0	0
06/10/2022	1 adult, 1 juvenile	0	0	0	0	-

REPORT

11/10/2022	1 adult	0	0	-	-	1 adult
13/10/2022	-	0	0	-	-	-
18/10/2022	-	0	0	-	-	-
20/10/2022	-	0	0	-	-	-

Slow worm

- 4.1.7 The survey confirmed the presence of slow worm in the PDZ, in grassland alongside the railway sidings (eastern end) and in Temporary Construction Area 2. No slow worm were recorded in Temporary Construction Area 1 or at Phoenix Wharf.
- 4.1.8 There was a peak count of two 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.
- 4.1.9 Small numbers of adults and sub-adults were recorded in Temporary Construction Area 2. The extent of optimal habitat is limited to the southern boundary and south-eastern corner with the closed canopy woodland being sub-optimal habitat.
- 4.1.10 South of the railway sidings is a north-facing grassland bank with linear woodland at the top. A single slow worm was recorded on a south-facing grass bank on the far side of the woodland.
- 4.1.11 No slow worms were recorded in habitats adjoining the disused railway lines in the western section of the sidings, where the scattered scrub and sparse ground cover provided fewer opportunities for this species.
- 4.1.12 A small area of scrub and grassland and scrub adjoining the sidings to the south-east was a further location where adult and a single juvenile slow worm were recorded.

Table 4.2: Slow worm survey results

Date	PDZ	Railway Sidings East	Railway sidings West	Temporary Construction Area 2	Temporary Construction Area 1	Phoenix Wharf
31/08/2022	0	-	-	0	0	0
13/09/2022	0	-	-	0	0	0
15/09/2022	1 sub-adult	-	-	1 sub-adult	0	0
16/09/2022	0	-	-	1 sub-adult	0	0
20/09/2022	2 adults	-	-	0	0	-
22/09/2022	0	2 adults	0	2 sub adults	0	0
26/09/2022	0	-	-	-	-	0
28/09/2022	0	0	0	0	0	0
06/10/2022	1 adult	1 juvenile	0	0	0	-
11/10/2022	0	0	0	-	-	0

REPORT

13/10/2022	-	1 adult	0	-	-	-
18/10/2022	-	0	0	-	-	-
20/10/2022	-	0	0	-	-	-

Grass snake

- 4.1.13 Adult, sub-adult and juvenile grass snakes were recorded during the survey being recorded in four of the six survey areas.
- 4.1.14 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 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 Phoenix Wharf, in late September and October.
- 4.1.15 Individual sub-adult grass snake were also recorded in Temporary Construction Area 2, Phoenix Wharf and in habitats alongside the railway sidings (east).

Table 4.3: Grass snake survey results

Date	PDZ	Railway Sidings East	Railway sidings West	Temporary Construction Area 2	Temporary Construction Area 1	Phoenix Wharf
31/08/2022	0	-	-	0	0	0
13/09/2022	0	-	-	0	0	0
15/09/2022	2 adults	-	-	0	0	0
16/09/2022	1 adult	-	-	1 sub-adult	0	0
20/09/2022	0	-	-	0	0	-
22/09/2022	0	1 sub-adult	0	0	0	1 juvenile
26/09/2022	0	-	-	-	-	0
28/09/2022	2 adults	0	0	0	0	1 juvenile
06/10/2022	0	1 sub-adult	0	0	0	-
11/10/2022	0	0	0	-	-	1 sub-adult
13/10/2022	1 juvenile	0	0	-	-	-
18/10/2022	-	0	0	-	-	-
20/10/2022	-	0	0	-	-	-

5 BADGER AND OTTER SURVEY RESULTS

5.1 Badger

- 5.1.1 No field signs 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 badgers 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 Temporary Construction Area 2, comprising dense scrub woodland adjoining an extensive reedbed; and in parts of the PDZ where willow scrub adjoins stands of seasonally wet reedbed.
- 5.2.4 The scrub woodland in Temporary Construction Area 2, adjoining an extensive 1ha reedbed is considered to have the potential to be used by otter with the possible presence of prey species and areas of cover in the vicinity of the dock. Further otter survey has been carried out in these habitats. Parts of scrub woodland adjoining stands of reed in the PDZ have also been subject to walkover surveys 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.
- 5.2.6 Temporary Construction Area 1 is sparsely vegetated ground with minimal areas of dense shelter. The disused railway sidings / railway line also have limited extents of dense cover and are

significant distance from the open water dock. The strip of dense bracken and bramble at Phoenix Wharf is a 15m wide strip of dense herbaceous cover but is bounded by the unnamed port road. The road is very frequently 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

- 5.2.7 In Temporary Construction Area 2, the edge of the scrub woodland, areas of bramble thicket and accessible margins of the reedbed were subject to systematic searches for signs of regularly used mammal paths in September, October and November.
- 5.2.8 The scrub woodland comprises 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 through the scrub woodland close to the northern boundary but did not lead into the reedbed. No other signs of activity that could relate to otters was observed during any of the walkover surveys.
- 5.2.9 The scrub around the stands of reed are located less than 50m from the edge of the open water dock. Transects through the scrub woodland and around the margin of the reedbed found one clear (non-rabbit) mammal paths leading from northern boundary into the PDZ.
- 5.2.10 Areas of dense cover with potential to be used as a laying up place were very limited. The scrub around the reed comprises multi-stemmed shrub willows with a sparse vegetation cover at ground level.

Trial Camera Remote Recording

- 5.2.11 The well-used mammal paths were inspected in the PDZ, but none were found in the south by the railway sidings. The mammal path in Temporary Construction Area 2 was covered by a trial camera for multiple weeks between September and November. The path was solely used by foxes over this three month period. The mammal path on the northern boundary of the PDZ was covered by a trail camera throughout October and December. Foxes and rabbits were the recorded using the 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 Site to the south of the survey area as shown on Drawing 7 (ECO02340-0010). Descriptions and photographs of the waterbodies are presented in Appendix A.
- 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 related to 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 unnamed port road 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 generally 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 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. 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 in a local context with a known roost in the local area beyond 2km from the site.
- 7.1.8 The detections of noctule bat were typically periodic, indicative of bats commuting over of the site; A small proportion of the recorded activity had high repetition call rates indicative of brief periods of foraging. The low number of noctule calls over the recording periods indicates that habitats within the site are not frequently used by foraging noctule bats. Overall the site is considered to have 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 Outside of the PDZ and adjacent Phoenix Wharf, small numbers of all three species were found in Temporary Construction Area 2. Due to the small size of the suitable reptile habitat in this area, it is likely to be part of more extensive habitats supporting the reptile populations.
- 7.2.7 The ballast substrate with colonising butterfly bush, present across the main part of the sidings, has a generally sparse vegetation cover limiting its potential value, but grass snake and slow worm were found in small numbers in grassland set back from the railway tracks and ballast.
- 7.2.1 Reptiles are very likely to be absent from Temporary Construction Area 1, 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 value for reptiles compared to the PDZ and Temporary Construction Area 2.

7.3 Badgers

- 7.3.1 The survey results indicate the absence of badger setts from the PDZ, Temporary Construction Areas and sidings. 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.
- 7.5.4 Temporary Construction Area 2 lies within 90m of one of the seasonal waterbodies. In the very unlikely event that the pooling in the operational coal stockyard supports a GCN breeding population there is a low likelihood of individuals utilising habitats within this part of the survey area.

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. 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.
- 8.1.2 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.

8.2 Reptiles

- 8.2.1 Resident breeding populations of three reptile species are present within the survey area, but with no reptiles recorded in Temporary Construction Area 1 or the ballast habitats in the centre of the sidings.
- 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 larger population in mixed scrub habitats and grassland outside the survey area to the west of the PDZ and was also recorded in Temporary Construction Area 2.
- 8.2.3 A grass snake population is resident in docks with sightings within the survey area and past records from the former mineral extraction. The regular sightings and the presence of sub-adults and juveniles indicates that the PDZ is an important habitat for this species. In terms of the potential value of habitats the 1ha reedbed to the east of the PDZ is expected to a key 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. Terrestrial habitats in Temporary Construction Area 2 would have the potential to be used by great crested newts if breeding in the seasonal waterbody that forms in a heavily trafficked operational yard.

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DRAWINGS

Drawing 1

Survey Areas

Drawing 2

**Remote Static Detector
Locations**

Drawing 3

Bat Transects and Activity

Drawing 4

Bat Transect Density Maps

Drawing 5

Reptile Refuge Location Plan

Drawing 6

Reptile Results Plan

Drawing 7

Waterbody Location Plan



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Legend

Site Boundaries

Rev	Description	By	CB	Date



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Client LanzaTech

Project Project Dragon

Title Survey Areas

Status Drawn By PM/Checked By
ISSUE OW TO

Project Number Scale @ A3 Date Created
ECO02340 1:3,000 MAR 2023

Figure Number Rev
1 -

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Legend

Site Boundaries

Bat Statics

- Spring
- Mid-summer
- Late-summer
- Temporary

Rev	Description	By	CB	Date



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Client	LanzaTech		
Project	Project Dragon		
Title	Bat Static Detector Locations		
Status	Drawn By	PM/Checked By	
ISSUE	HM	TO	
Project Number	Scale @ A3	Date Created	
ECO02340	1:5,000	MAR 2023	
Figure Number		Rev	
2			1

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- Legend**
- Site Boundaries
 - Bat Transect Route
 - Transect Points
- Bat Transect Results**
- Nyctalus noctula
 - Pipistrellus pygmaeus
 - Pipistrellus pipistrellus

Rev	Description	By	CB	Date



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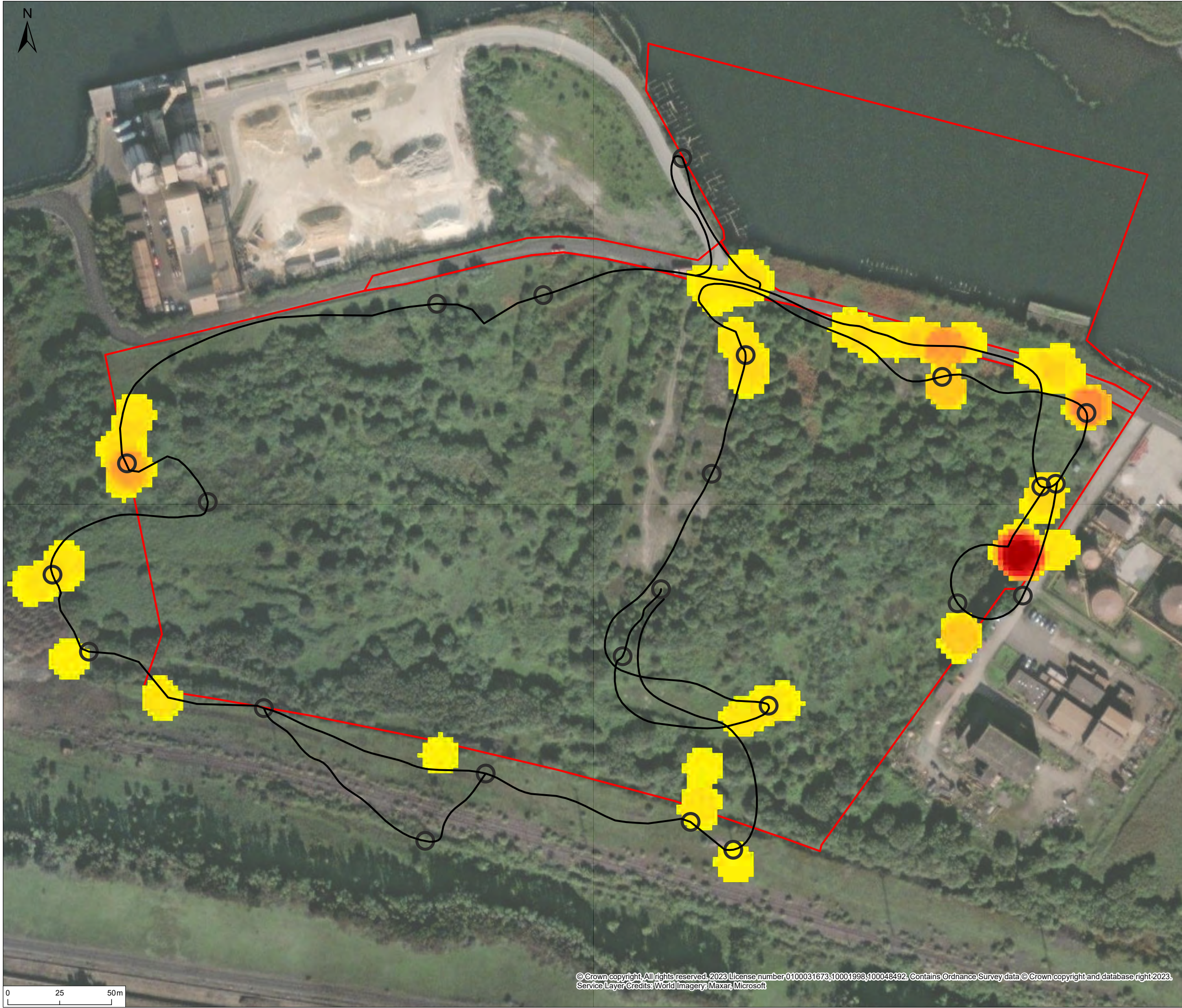
Client **LanzaTech**

Project **Project Dragon**

Title **Bat Activity**

Status	Drawn By	PM/Checked By
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Project Number	Scale @ A3	Date Created
ECO02340	1:3,000	MAR 2023
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Legend

- Site Boundaries
- Bat Transect Route
- Transect Points

Rev	Description	By	CB	Date



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Client **LanzaTech**

Project **Project Dragon**

Title **Bat activity heat map - PDZ**

Status	Drawn By	PM/Checked By
ISSUE	HM	TO
Project Number	Scale @ A3	Date Created
ECO02340	1:1,750	MAR 2023
Figure Number		Rev
4		1

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W:_GIS_ OtherOfficeWork\ECO02340 Project Dragon\TechDrawings\ECO02340-0001-01 Reptile refugia plan.mxd



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Legend

Reptile refugia plan

- Laydown Area 1
- Laydown area 2
- PDZ
- Phoenix Wharf
- Railway Sidings East
- Railway Sidings West
- Set out reptile sheets

Rev	Description	By	CB	Date



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Project Project Dragon

Title Reptile Refuge Mats

Status	Drawn By	PM/Checked By
ISSUE	DGH	-
Project Number	Scale @ A3	Date Created
ECO02340	1:3,500	MAR 2023
Figure Number		Rev
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- Legend**
- Reptile refugia plan
- Laydown Area 1
 - PDZ
 - Phoenix Wharf
 - Railway Sidings East
 - Railway Sidings West
- Reptiles observed
- 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

Rev	Description	By	CB	Date



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Title Reptile Results

Status DRAFT	Drawn By DGH	PM/Checked By AH
Project Number ECO02340	Scale @ A3 1:3,000	Date Created MAR 2023
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- Legend
- Site Boundary
 - W Pond ID
 - TCA2: Pond Distance to Temporary Construction Area 2
 - PDZ: Pond Distance to Production Development Zone

Rev	Description	By	CB	Date



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Client LanzaTech

Project Project Dragon

Title Waterbody Location Plan

Status	Drawn By	PM/Checked By
ISSUE	HM	TO
Project Number	Scale @ A3	Date Created
ECO02340	1:6,000	MAR 2023
Figure Number		Rev
7		1

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APPENDICES

Appendix A

Waterbody Descriptions

Pond ID	Photo	Description
W1		Standing surface water in raw materials storage area. Permanence: Temporary pooling during heavy rainfall. Water quality: Low and it is highly trafficked area. Depth in winter: 2-5cm maximum depth
W2		Standing surface water on the margin of a raw materials storage area. Permanence: Dries out in summer months but less transient than W1 Water quality: likely to be contaminated with iron ore stocks. Depth in winter: 2-5cm maximum

Pond ID	Photo	Description
W3		Standing surface water in raw materials storage area. Highly trafficked area meaning that it could not be safely photographed Permanence: Seasonal pooling during heavy rainfall equivalent to W1 Water quality: Low with the waterbody located in a highly trafficked area. Depth: 2-5cm maximum
W4		Forms part of the site drainage and is pumped into sump 1 near the sinter plant, predominantly formed from rainwater and run-off from the blast-furnace slurry stocking area. Fully enclosed by active operational areas and barriers to the migration. The sinter plant (RHS of photograph) lies to the north of the waterbody. Permanence: Will hold water throughout the year. Water quality: Likely to be poor Depth: 1m maximum