

EASTERN BAY LINK ROAD, CARDIFF -  
BAT SURVEY REPORT

*Welsh Government*

3512558C-HHC

V1



# Eastern Bay Link Road, Cardiff - Bat Survey Report

3512558C-HHC

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**EXECUTIVE SUMMARY**

Introduction	Parsons Brinckerhoff Ltd. has been commissioned by the Welsh Government to undertake a bat survey of the proposed Eastern Bay Link Road in Cardiff. The proposed road will join Queens Gate roundabout on the A4232, to Ocean Way roundabout within Cardiff Docks.
Methodology	<p>Bat surveys were carried out in summer 2014; comprising tree bat assessments, activity transect and static detector surveys. A desk study was completed to identify records of bats within 2 km the survey area.</p> <p>The objective of the bat surveys was to identify species composition, abundance and the status of bat populations using the development footprint and its immediate surroundings.</p> <p>The survey results were used to identify the potential effects of the development on local bat populations. This was used to inform the measures required to mitigate adverse effects to any bat populations present.</p>
Results	<p>The results of the desk study and field surveys carried out in 2014 have confirmed the presence of bats within the survey area. Six species of bats were found to utilise habitats within the survey area for foraging and commuting.</p> <p>The field surveys identified a total of at least five species within the survey area; common pipistrelle (<i>Pipistrellus pipistrellus</i>), soprano pipistrelle (<i>Pipistrellus pygmaeus</i>), Nathusius' pipistrelle (<i>Pipistrellus nathusii</i>), noctule (<i>Nyctalus noctula</i>), and a Myotis species (<i>Myotis sp.</i>). In addition, <i>Nyctalus sp.</i> calls were recorded which couldn't be assigned to species level.</p> <p>No roosts were identified during the bat survey works. Several species of bats were found to utilise habitats within the survey area for foraging and commuting. However, species richness and abundance was low. Common pipistrelle made up the majority of the calls recorded.</p> <p>The bat species likely to be impacted are generally commoner species of bat and the use of the survey area by bats is generally low.</p> <p>Any impact assessment and mitigation measures will be detailed within the subsequent Environmental Statement and licence application (if required).</p>



SECTION 1

**INTRODUCTION**

## **1 INTRODUCTION**

### **1.1 Background**

1.1.1 Parsons Brinckerhoff Ltd. was commissioned by the Welsh Government to undertake a bat assessment of the proposed Eastern Bay Link Road in Cardiff.

1.1.2 The need for targeted bat surveys was identified following an Extended Phase 1 Habitat survey conducted by Parsons Brinckerhoff in September 2013<sup>1</sup>. The Phase 1 survey identified suitable habitat for roosting, foraging and commuting bat species within the development footprint. Therefore, recommendations were made for further detailed surveys to determine the bat status of the survey area.

1.1.3 The objective of the bat assessment was to identify species composition, abundance and the status of bat populations using the development footprint and its immediate surroundings (the 'survey area'). This would allow the potential effects of the development on any local bat population to be assessed.

1.1.4 The information acquired will also be used to inform any mitigation measures needed. These will be detailed within subsequent Environmental Statement reporting, if required.

### **1.2 Site context**

1.2.1 The proposed Eastern Bay Link Road will join Queens Gate roundabout on the A4232 to Ocean Way roundabout within Cardiff Docks. The survey area is located in the south of Cardiff. Refer to Figure 1 for the location of the survey area.

1.2.2 The Cardiff Dock railway track runs through the survey area and is surrounded by a predominantly industrial landscape. Roath Dock is present south of the survey area and Cardiff Bay is situated to the south west.

1.2.3 The survey area consists of former industrial land containing a large amount of hard standing, buildings, machinery and spoil in the west. Large parts of the survey area now support scrub, which has developed in derelict areas. At the eastern end of the survey area nearest to Ocean Way roundabout grassland, scrub and immature woodland occurs.

### **1.3 Proposed scheme**

1.3.1 The Eastern Bay Link Road forms part of the planned Cardiff Peripheral Distributor Road (PDR) linking southern Cardiff to the M4 in the West and A48 (M) to the East. The Queens Gate roundabout to Ocean Way roundabout section of the Bay Link provides a continuation of the existing Butetown Link as it emerges from the tunnel at Queens Gate roundabout, passing through Cardiff Docks for approximately 1km before terminating at the existing Ocean Way roundabout and Rover Way beyond.

1.3.2 The road will be a dual carriageway with 70mph speed limit. A bridge and embankments will be required to gain the necessary height for crossing over the Dock Railway. The elevated section, up to 8m in height, will be largely on embankment but includes retaining walls on the over-bridge western approach. A footway / cycle route will be included. Accommodation works include a parallel diversion to Docks Road and a new/re-tasked access into the Celsa works.

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<sup>1</sup> Parsons Brinckerhoff (2013). Eastern Bay Link Road, Cardiff – Extended Phase 1 Survey Report.

1.3.3 The indicative scheme footprint covers an area of approximately 5.5 hectares.

#### 1.4 **Legislation and planning context**

1.4.1 All UK bat species are included in Annex I of the EC Habitats Directive which transposes into Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended) which defines 'European protected species of animals', some bat species are also listed on Annex II of the Habitats Directive which means that Special Areas of Conservation may be attributed to internationally important roosts/ foraging areas of these species. This legislation is commonly referred to as the 'Habitats Regulations'.

1.4.2 All 17 native UK bat species also receive partial protection under Schedule 5 of the Wildlife and Countryside Act 1981 (WCA) (as amended) (OPSI WCA, 2009). The Countryside and Rights of Way Act 2004 (CROW) (OPSI CROW, 2009) has amended the WCA in England and Wales and this act adds additional enforcement, increasing time limits for some prosecutions and increasing penalties.

1.4.3 Together this legislation makes it illegal to:

- Deliberately kill, injure or capture bats;
- Deliberately disturb bats whether in a roost or not, disturbance includes anything that is likely to impair their ability to survive, breed, reproduce or rear their young, or impair their ability to hibernate or migrate.
- Intentionally or recklessly disturb roosting bats or obstruct access to their roosts;
- Damage or destroy bat roosts\*;
- Possess or transport a bat or any part of a bat unless acquired legally; and
- Sell or exchange bats, or parts of bats.

\*A roost is defined as a breeding/resting place of a bat, as bats use different roosts at different times of year a roost is protected whether a bat is present or not.

1.4.4 As a signatory to the Bonn Convention (Agreement of Bats in Europe) (CMS BC, 2009) the UK is also required to protect bats habitat, requiring their identification and protection from damage or disturbance of important feeding areas.

1.4.5 If planned works would constitute an offence they may only be carried out under licence from Natural Resources Wales. Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker (with a Natural Resources Wales Bat Licence).

1.4.6 Several species of bats are listed under Section 42 of the NERC Act 2006 as Species of Principal Importance. Species include the greater horseshoe bat, (*Rhinolophus ferrumequinum*), lesser horseshoe bat (*Rhinolophus hipposideros*), barbastelle (*Barbastella barbastellus*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), Bechstein's bat (*Myotis bechsteinii*) and brown long-eared bat (*Plecotus auritus*). In addition, these species are listed under the Wales Biodiversity Framework.

SECTION 2

**METHODOLOGY**

## 2 METHODOLOGY

### 2.1 Desk study

2.1.1 Parsons Brinckerhoff carried out a desk study search for existing ecological records in September 2013 as part of the Extended Phase 1 Habitat survey<sup>Error! Bookmark not defined.</sup>. This included a search for records of bats within a 2 km radius of the survey area. Searches included local sites designated for support bat populations.

2.1.2 The South East Wales Biological Records Centre (SEWBRc) was used during the desk study exercise.

### 2.2 Field study

2.2.1 Survey methodologies were designed using best practice guidance from the Bat Conservation Trust<sup>2</sup>, Joint Nature Conservation Committee Bat Workers' Manual<sup>3</sup> and Bat Mitigation Guidelines<sup>4</sup> where appropriate.

#### Habitat assessment

2.2.2 An assessment of the suitability of the habitat for bats within the survey area was conducted. Using Phase 1 Habitat Survey Data, aerial photographs of the local area and the initial desk study information, the habitat was classified as either of low, medium, or high quality using professional expertise and criteria given in Appendix A. This analysis then allowed for determination of the level of survey effort required under best practice guidance<sup>2</sup>.

#### Tree assessment works

2.2.3 All trees that are to be affected by the proposed development were assessed for their potential to support roosting bats. An initial tree assessment was undertaken during the Extended Phase 1 Habitat Survey in September 2013. Further, targeted tree bat assessments were then undertaken via visual inspections from the ground on the 8<sup>th</sup> May 2014 by an experienced licensed bat worker. All tree bat surveys followed best practice guidance<sup>2</sup>.

2.2.4 Each tree was inspected for features with bat roosting potential and signs indicating use by bats (Table 2.1.) using binoculars and a torch.

2 Hundt L. (2012) Bat Surveys, Good Practice Guidelines 2nd Edition – 2012 Bat Conservation Trust.

3 Mitchell-Jones A. J. (2004) Bat workers Manual, 3rd Edition – 2004 Joint Nature Conservation Committee.

4 Mitchell-Jones A. J. (2004). Bat mitigation guidelines – 2004. English Nature.

**Table 2.1: Features of trees commonly used by roosting bats<sup>5</sup>**

Features of trees used as bat roosts	Signs indicating possible use by bats
Natural holes. Woodpecker holes. Cracks/splits in major limbs. Loose bark. Hollows/cavities. Dense epicormic growth (bats may roost within it). Bird and bat boxes.	Tiny scratches around entry point. Staining around entry point. Bat droppings in, around or below entrance. Audible squeaking at dusk or in warm weather. Flies around entry point. Distinctive smell of bats. Smoothing of surfaces around cavity.

2.2.5 Each tree was designated a particular category of bat potential (confirmed, 1\*, 1, 2 or 3) depending on the suitability of the tree for use bats. A summary of the categories is provided in Table 2.2.

**Table 2.2: Protocol for visual inspection of trees<sup>6</sup>**

Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
<b>Known confirmed roost</b> or	Follow SNCO guidance <sup>7</sup> and these guidelines wherever possible, to establish the extent to which bats use the survey area. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above.		The tree can be felled only under EPS <sup>8</sup> licence following the installation of equivalent habitats as a replacement.
<b>Category 1*</b> Trees with multiple, highly suitable features of capable supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence.  <b>A consultant ecologist is required</b>	Avoid disturbance to trees, where possible.  Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures such as 'soft felling' to minimise the risk of harm to individual bats.

<sup>5</sup> Bat Conservation Trust (2012) Bat Surveys: Good Practice Guidelines (2nd edition)

<sup>6</sup> Corylus Ecology Ltd. Located within Hundt L. (2012) Bat Surveys, Good Practice Guidelines 2nd Edition – 2012 Bat Conservation Trust

<sup>7</sup> Statutory Nature Conservation Organisation (SNCO) in this case Natural Resources Wales.

<sup>8</sup> European Protected Species

<p><b>Category 1</b> Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats</p>	<p>Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. <b>A consultant ecologist required</b></p>	<p>Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.</p>	<p>Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings</p>
<p><b>Category 2</b> Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.</p>	<p>None. <b>A consultant ecologist is unlikely to be required</b></p>	<p>Avoid disturbance to trees, where possible. No further surveys.</p>	<p>Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.</p>
<p><b>Category 3</b> Trees with no potential to support bats</p>	<p>None. <b>A consultant ecologist is not required unless new evidence is found</b></p>	<p>None.</p>	<p>No mitigation for bats required.</p>

## 2.3 Transect surveys

- 2.3.1 Habitats within the survey area were determined to be of medium habitat quality and the project was considered to be large, as it proposes an infrastructure development. Based on this, it was recommended that seven transect surveys be carried out (April – September inclusive).
- 2.3.2 Transect surveys were carried out in order to ascertain the level of commuting and foraging by bats across the survey area as a whole. The transect routes were designed using aerial photographs and the phase 1 habitat maps and were covered each habitat type within the survey area.
- 2.3.3 The surveys commenced 15 minutes before sunset and continued until 120 minutes after sunset. The general activity of bats throughout the survey area was determined by walking a predetermined route around the survey area (Figure 2). The transect route was walked at a slow and steady pace. Sixteen six minute stop off points were

selected along the route. Figure 2 shows the transect route and stop off points. The transect was started in different locations along the transect each survey, allowing for each part of the survey area to be surveyed at different times.

2.3.4 During the transect surveys, the number of bat passes, and where possible species and behaviour of each bat was recorded as well as the time at which each bat was identified. A bat pass was defined as two or more bat calls in a continuous sequence, each sequence or pass is separated by 1 second or more in which no calls were recorded. The number of bat passes for each species is counted for each transect, transect section or point.

2.3.5 Weather conditions were recorded at the beginning of each transect survey along with any significant changes as the survey progressed. All transect surveys were undertaken in weather conditions in which bat activity could reasonably be expected to occur. Survey dates and conditions for each transect survey are shown in Table 2.3 below.

**Table 2.3: Survey dates and conditions for transect surveys**

Survey date	Start point and direction	Sunset/sunrise	Temp °C	Cloud cover ( Oktas)	Wind (Beaufort scale)	Rain
10/04/2014	Stop 1, counter-clockwise	20.00	11	5/8	2	0
08/05/2014	Stop 3, counter-clockwise	20.47	13	8/8	4	Drizzle from 22.23
12/06/2014	Stop 6, counter-clockwise	21.30	17	0/8	0	0
21/07/2014	Stop 1 (due to access issues), counter-clockwise	21.32	21	0/8	2	0
14/08/2014	Stop 12, counter-clockwise	20.38	12	3/8	2	0
01/09/2014	Stop 15, counter-clockwise	1944	19	1/8	1	0
02/09/2014	Transect 16, counter-clockwise	0627	14	2/8	2	0

Assessment of transect survey activity levels

- 2.3.6 The results from the activity surveys have been assessed from the levels of relative recorded activity over the survey period within the context of the survey area.
- 2.3.7 The aim of the activity surveys was to determine the following:
- Presence / absence of bats, level of activity and species present;
  - Location of bat activity and / or bat roosts; and
  - The type of activity (foraging, feeding, commuting or roosting).
- 2.3.8 The reason for providing activity levels for the assessment of the transect survey data is to aid with the interpretation of the information obtained during the surveys. Levels of activity have been categorised as high, medium, low and absent. These have been categorised as follows:
- **High** – nearly constant activity across the transect or for the duration of the listening station;
  - **Medium** – intermittent bat passes – four or more bat passes at the listening station or during the transect;
  - **Low** – the occasional bat pass – less than four bat passes at the listening station or during the transect; and
  - **Absent** – no activity observed.
- 2.3.9 It should be noted that these categorisations are designed to enable a comparison of relative bat activity at different locations across the survey area and are not indicative of the overall value of the survey areas for foraging and commuting bats.

Static detector surveys

- 2.3.10 Two static SM2 detectors were deployed in two locations within the survey area. The locations of the static detectors are shown in Figure 3.
- 2.3.11 The SM2 detectors were set to record from half an hour before sunset to half an hour after sunrise for at least five nights per month (May – September) (see limitations), as per best practice guidance. The downloaded recordings were made in WAC format then converted to ZCA files using Kaleidoscope version 0.1.4 (Wildlife Acoustics, Inc. 2011) and analysed using AnalookW v. 0.3.8.13 (Corben, 2011).

**2.4 Survey limitations and assumptions**Data analysis

- 2.4.2 Bat surveys undertaken using bat detectors are inherently biased as bats with louder calls (such as the *Nyctalus* species) will be recorded at a greater distance (and therefore more frequently) than species which use quiet calls such as *Plecotus* sp. This is recognised as a potential limitation but has been considered when interpreting the results.
- 2.4.3 Species identification by sonogram is limited (to a certain extent) by similarities in call structure. In addition all bats can modulate their calls according to the habitats they are navigating, their behaviour and the information they require at the time. This often

makes identification to species level within the genera's *Plecotus*, *Myotis* and *Nyctalus* unreliable. Due to the survey areas location in combination with the desk study data, every *Plecotus* species recorded was considered likely to be a brown long-eared bat *Plecotus auritus*.

- 2.4.4 *Nyctalus* species were separated where possible but grouped where overlap prevented reliable identification.

#### Transect surveys

- 2.4.5 The transect surveys provide a snap shot of the bat activity within the survey area at the time of survey. However, the static detector surveys provided a longer duration survey with the several nights of survey undertaken using two detectors likely to give a representative sample of the level of bat activity and range of species present in the area over a longer-duration.

- 2.4.6 Access issues on several visits prevented the transect route from being followed directly and changed the starting point of survey 4. Surveys 5 – 7 required a change in route to avoid the south gate between Celsa and AB Port land due to access being denied. This amendment to the route is shown in Figure 4. This amendment is not considered to have affected the sampling strategy as it was still possible to walk around the periphery of the survey area and all habitats were sampled on every occasion.

#### Static detector surveys

- 2.4.7 Static detector surveys were carried out in May – September rather than April – September. It is considered that deployment of two static detectors for 5 months will provide sufficient survey data to enable a full understanding of the bat use of the survey area. Although care should be taken in evaluation of the bat use of the survey area in spring, the lack of supporting survey data from April is not considered a significant limitation to the following assessment.

#### Survey limitations

- 2.4.8 The survey limitations detailed above are not considered to compromise the validity of the survey data or constrain the interpretation of this data when used to provide an understanding of the use of the survey area by bats.

SECTION 3

**RESULTS**



### **3 RESULTS**

#### **3.1 Desk study**

3.1.1 The desk study identified 125 records of bats within the 2 km search area. The majority of these were pipistrelle bats, with both common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) recorded. Two records for Nathusius's pipistrelle (*Pipistrellus nathusii*) were also provided. Larger bats were also recorded, with 24 records of Noctule bats (*Nyctalus noctula*).

3.1.2 In terms of rarer species two lesser horseshoe (*Rhinolophus hipposideros*) and a single greater horseshoe (*Rhinolophus ferrumequinum*) record were identified. Seven records of Myotis species bats were provided, along with eight unidentified bat records.

3.1.3 The majority of the bat records were from the Bats and Bikes Survey Data collected by the Cardiff Bat Group and are records of commuting and foraging bats. One bat roost record was provided for a common pipistrelle roost, this record was over 1 km from the survey area.

3.1.4 None of the records received were from within the survey area.

#### **3.2 Habitat assessment**

3.2.1 The survey area and its surrounds provide a variety of suitable habitats for use by roosting, foraging and commuting bats.

3.2.2 Woodland trees and scattered broadleaved trees were noted for their potential to support roosting bats. In particular woodland in the east of the survey area along Ocean Way roundabout held the highest value. Species rich grassland, scrub edge habitats and colonising species on previously developed land were considered to have potential to support a range of invertebrate species which could be predated by local bat populations.

3.2.3 Several linear features (railway and scrub habitats) within the survey area were noted as having potential to support commuting bats. The dismantled railway is likely to prove a navigational feature in the wider landscape for local bat populations as is the vegetated corridor which the survey area presents within a wider industrial landscape.

#### **3.3 Tree assessments**

3.3.1 The results of the tree assessment works for bats found that all trees surveyed were classified as category 3. All trees within the survey area were grouped into one block at the north east end of the survey area near Ocean Way Roundabout. Table 3.1 below details the trees assessed and their respective categories.

**Table 3.1: Tree assessment results**

Description	Categories	Recommendations
<p>Group of approximately 180 trees forming a woodland belt along the side of Ocean way Roundabout. The tree species were dominated by sycamore (<i>Acer pseudoplatanus</i>) and hawthorn (<i>Crataegus monogyna</i>), with ash (<i>Fraxinus excelsior</i>), goat willow (<i>Salix caprea</i>) and silver birch (<i>Betula pendula</i>).</p> <p>The trees were considered to have no visible potential to support roosting bats.</p>	Category 3	No mitigation for bats required.

3.3.2 All of the trees surveyed as part of the tree assessment works were classified as Category 3 (refer to Table 2.2 for definitions of categories). Therefore, no further ecological input is required for felling of the trees.

### 3.4 Transect surveys

3.4.1 The field surveys included six transect surveys carried out April – September inclusive. A summary of the bat activity during each transect is presented in Table 3.2 below.

**Table 3.2: Summary of transect surveys**

Date	Species recorded and number of bat passes heard	Total number of bat passes recorded	Activity summary
10/04/2014	Common pipistrelle	4	<p>Activity during the transect was considered to be <b>very low</b> with very few bat passes.</p> <p>The first bat was a common pipistrelle recorded at 42 minutes after sunset.</p> <p>The common pipistrelle activity that was recorded was associated with the north east and the south west of the survey area.</p>
08/05/2014	Common pipistrelle	5	<p>Activity during the transect was considered to be <b>very low</b> with very few bat passes.</p> <p>The first bat was a common pipistrelle recorded at 19 minutes after sunset</p> <p>The common pipistrelle activity that was recorded was associated with the north east and the south west of the survey area.</p>
12/06/2014	Common pipistrelle	23	<p>Activity during the transect was considered to be <b>low</b> with intermittent bat passes.</p> <p>The first bat was a common pipistrelle recorded at 21 minutes after sunset</p> <p>The common pipistrelle and soprano pipistrelle activity that was recorded was spread across the entire survey area, with a particular density of recordings associated with the south west of the survey area.</p>
	Soprano pipistrelle	8	

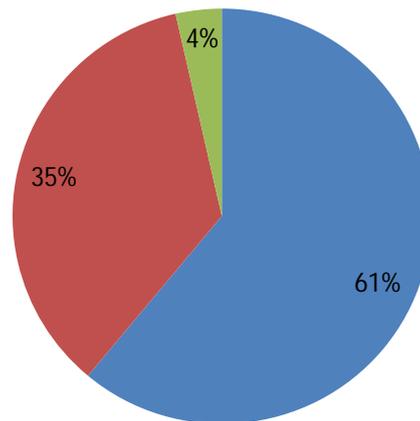
Date	Species recorded and number of bat passes heard	Total number of bat passes recorded	Activity summary	
21/07/2014	Common pipistrelle	9	11	Activity during the transect was considered to be <b>very low</b> with few bat passes. The first bat was a common pipistrelle recorded at 64 minutes after sunset The common pipistrelle and noctule activity that was recorded was associated with the south west of the survey area.
	Noctule	2		
14/08/2014	Common pipistrelle	2	27	Activity during the transect was considered to be <b>low</b> with few bat passes. The first bat was a soprano pipistrelle recorded at 73 minutes after sunset The common pipistrelle and soprano pipistrelle activity that was recorded was associated with the centre and west of the survey area.
	Soprano pipistrelle	25		
01/09/2014	Common pipistrelle	30	39	Activity during the transect was considered to be <b>low</b> with intermittent bat passes. The first bat was a soprano pipistrelle recorded at 38 minutes after sunset The common pipistrelle, soprano pipistrelle and noctule activity that was recorded was associated with the centre, west, north west and south west of the survey area.
	Soprano pipistrelle	7		
	Noctule	2		
02/09/2014	None	0	0	No bats were recorded during this survey.

- 3.4.2 Overall the bat activity surveys found **low** bat activity levels within survey area. Further, species diversity recorded during the transect works was **low**. The transect surveys identified two genus (*Pipistrellus* and *Nyctalus*) within the survey area. The three distinct species recorded within the survey area were common pipistrelle, soprano pipistrelle and noctule. This confirms a minimum of three species present within the survey area identified during the transect surveys.
- 3.4.3 Areas with higher levels bat activity were limited to areas in the north east and in the south west. Higher levels in the north east were considered to be from bats foraging along scrub edge habitats. Intermittent bat passes were recorded along Roath Dock Road considered likely to be from commuting bats. However, all results were considered to be low overall.
- 3.4.4 The first bat recorded on each transect survey was either a common pipistrelle or a soprano pipistrelle, and the earliest bats were recorded in the north east of the survey area. These species generally emerge earlier in the evening than other bat species. The earliest bats recorded were approximately 20 minutes after sunset. Due to the nature of the habitats and the timings of the first bat calls it is unlikely that any roosts are present within the survey area or directly adjacent to it. It is likely that the bats identified during the transect surveys were using the survey area to forage and commute.

3.4.5 The bat calls from the varying species recorded within the survey area are shown in Graph 3.1 below.

**Graph 3.1: Chart to show percentage of different bat species detected during the 2014 bat transect surveys**

■ Common pipistrelle ■ Soprano pipistrelle ■ Noctule



3.4.6 Of the species recorded during the transect surveys common pipistrelle were the most common species comprising 61% of all passes recorded as shown in Table 3.4 below. Static surveys

3.4.7 The results of the static detector surveys have been used to supplement the data on species composition and capture bat activity throughout the night. The static detector locations are shown in Figure 3.

3.4.8 The results of the static detector surveys are shown in Table 3.3 below.

**Table 3.3: Summary of the static detector survey results**

Season	Date	Location 1 (East)		Location 2 (West)	
		Species	Passes per survey	Species	Passes per survey
May	20/05/2014 – 26/05/2014	No bats recorded		Common pipistrelle	1
June	18/06/2014 – 26/06/2014	No bats recorded		Common pipistrelle	1
				Soprano pipistrelle	3
July	25/07/2014 – 30/07/2014	No bats recorded		Common pipistrelle	2144

Season	Date	Location 1 (East)		Location 2 (West)	
				Soprano pipistrelle	852
				<i>Nyctalus</i>	16
				Noctule	73
				<i>Myotis sp</i>	5
August	27/08/2014 – 31/08/2014	Common pipistrelle	36	Common pipistrelle	542
		Soprano pipistrelle	2	Soprano pipistrelle	4
				Noctule	2
September	01/09/2014 – 05/09/2014	Common pipistrelle	78	Common pipistrelle	411
		Soprano pipistrelle	8	Soprano pipistrelle	178
		Nathusius' pipistrelle	2	Nathusius' pipistrelle	4
		Noctule	2	Noctule	39

3.4.9 The static detector surveys recorded potentially three additional bat species not recorded during the transect surveys. Nathusius' pipistrelle, a *Nyctalus* species and *Myotis* species we recorded during the July and September surveys. This takes the total species recorded to at least five species recorded (see Table 3.5 below).

3.4.10 The detectors recorded over 4000 bat passes over the 5 months survey. Of all the calls recorded the most common species, similarly to the transect data, was common pipistrelle with 73% of all calls, followed by soprano pipistrelle, 24% of all calls. Rarer species, Nathusius' pipistrelle made up a mere 0.2 % of all calls.

3.4.11 The static detectors were deployed in two locations within the survey area; in the east adjacent to woodland near Ocean Way roundabout and in the west of the survey area adjacent to scrub habitats (refer to Figure 3). Table 3.4 below shows the total calls from each detector and the % of all calls recorded in each location.

**Table 3.4: Total bat calls recorded by location and the % of all calls recorded which were from each location**

	Location 1 (East)	Location 2 (West)
Total number of calls during all static detector surveys	638	3765
Percentage of all calls recorded which were from this location	14.5%	85.5%

- 3.4.12 This assessment indicates that the majority of the bat calls were recorded at location 2 (adjacent to the scrub habitats in the west of the survey area). Of all the bat calls recorded 85% were from this location. Habitats here included scrub edge habitats and open mosaic habitats on previously developed land.
- 3.4.13 The levels of recorded bat passes between the transect surveys and the static detector surveys are not considered to be significant, as the transect surveys supply only a snapshot of a single evening or morning's activity compared to five full nights worth of data.
- 3.4.14 The species recorded (or potentially recorded) within the survey area and their national status<sup>9</sup> are shown in Table 3.5 below.

**Table 3.5: Species recorded during the activity surveys and their National status**

Genus	Species	UK status <sup>10</sup>
<i>Pipistrellus</i>	Common pipistrelle	Common
	Soprano pipistrelle	Common
	Nathusius' pipistrelle	Rare
<i>Myotis</i> No distinct <i>Myotis</i> species were separated but all species which may be found within the survey area have been listed.	Daubenton's bat	Common
	Natterer's bat	Fairly common
	Whiskered bat	Locally distributed
	Brandt's bat	Common in the north and west, rare or absent in the south and east.
<i>Nyctalus</i>	Noctule	Uncommon

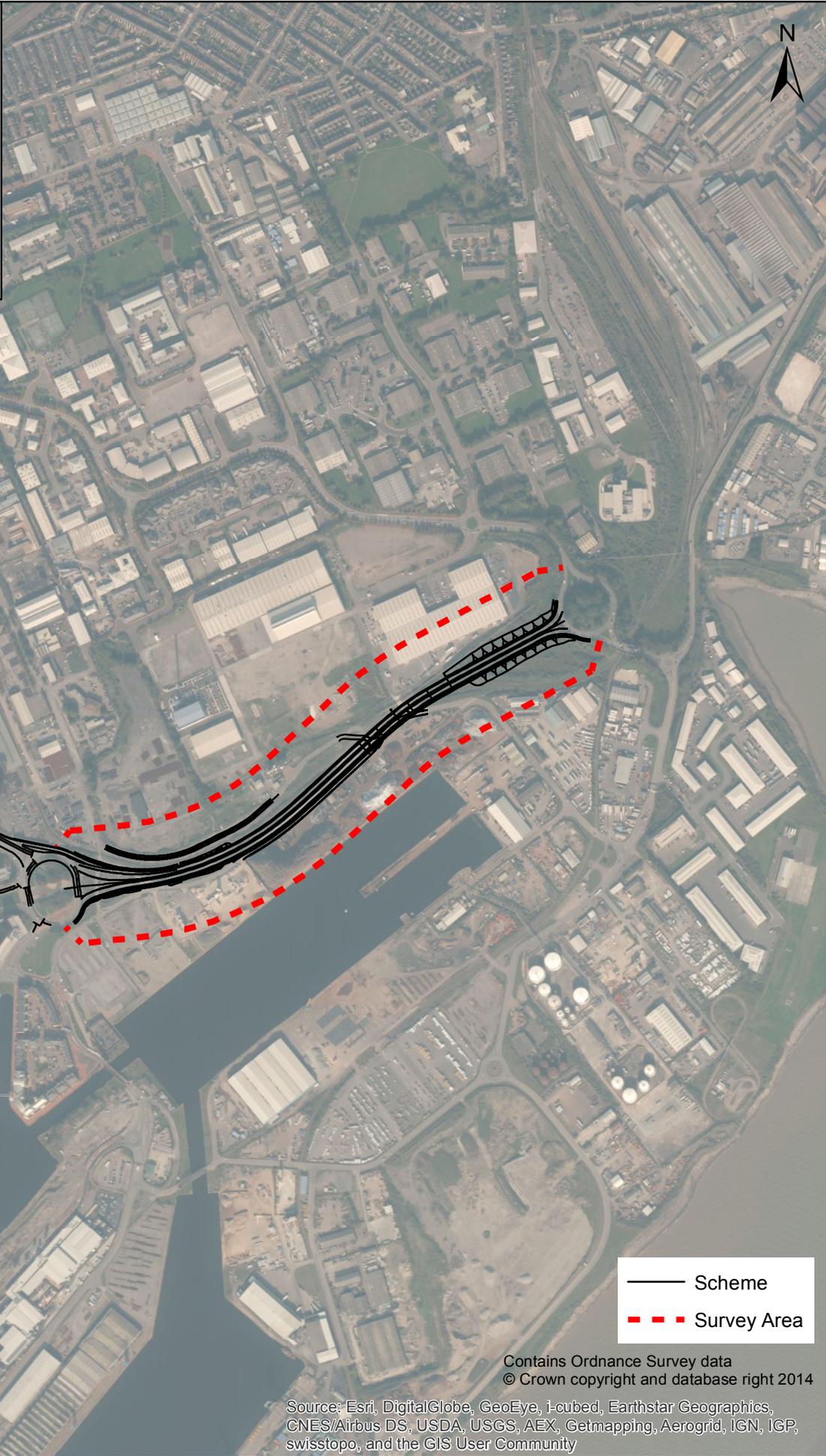
- 3.4.15 As shown above, most bat passes recorded during the transect, static detector and activity surveys were common pipistrelle. Common pipistrelle are a relatively common bat species found throughout the UK. Soprano pipistrelle was the next most frequently recorded species recorded within the survey area. Soprano pipistrelle are also a relatively common bat species and are widespread within the UK.
- 3.4.16 Rarer species recorded included Nathusius' pipistrelle and *Myotis spp.* these less common bats were recorded in very low numbers 2 – 5 bat calls only over the whole season, therefore they are likely to only use the survey area on a sporadic basis for commuting and foraging.

<sup>9</sup> Taken from: Mitchell-Jones T. & Carlin C. (2012) *Natural England Technical Information Note TIN051 Bats and Onshore Wind Turbines*. Natural England.

<sup>10</sup> Mitchell-Jones T. & Carlin C. (2012) *Natural England Technical Information Note TIN051; Bats and onshore wind turbines*. Natural England.

**3.5 Results summary**

- 3.5.1 The results of the desk study and field surveys carried out in 2014 have confirmed the presence of bats within the survey area. No bat roosts were identified during the bat survey works. Several species of bats were found to utilise habitats within the survey area for foraging and commuting. However, species richness and abundance was overall low. During several surveys less than a handful of bat passes were recorded. Common and widespread species such as common pipistrelle made up the majority of the calls recorded.
- 3.5.2 The bat species likely to be impacted are generally commoner species of bat and the use of the survey area by bats is generally low. Any impact assessment and mitigation measures will be detailed within the subsequent Environmental Statement and licence application (if required).



Scheme  
 Survey Area

Contains Ordnance Survey data  
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Client/Project  
**WELSH GOVERNMENT EASTERN BAY  
LINK QUEENS GATE RBT TO OCEAN  
WAY RBT - BAT REPORT**  
Title:  
**SITE LOCATION PLAN**

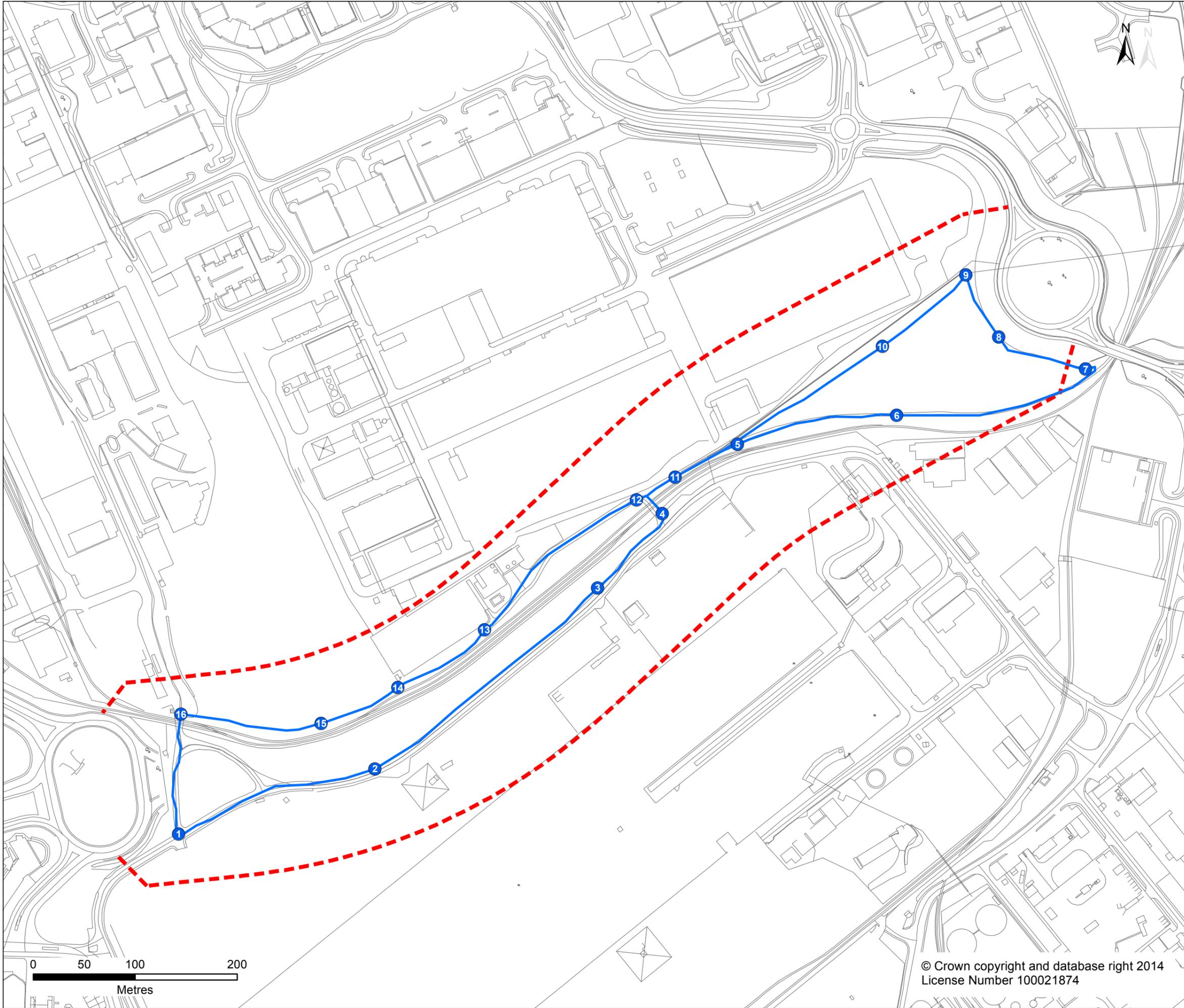
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Project Number: 3512646C	Drawing Number: FIGURE 1
Revision:	

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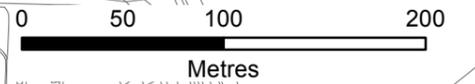
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- Survey Area
- Bat Transect Route
- Transect Stops



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Rev	Date	Description	By	Chk	App
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Client: **WELSH GOVERNMENT**

Site/Project: **EASTERN BAY LINK  
QUEENS GATE RBT  
TO OCEAN WAY RBT**

Title: **BAT TRANSECT AND STOPS**

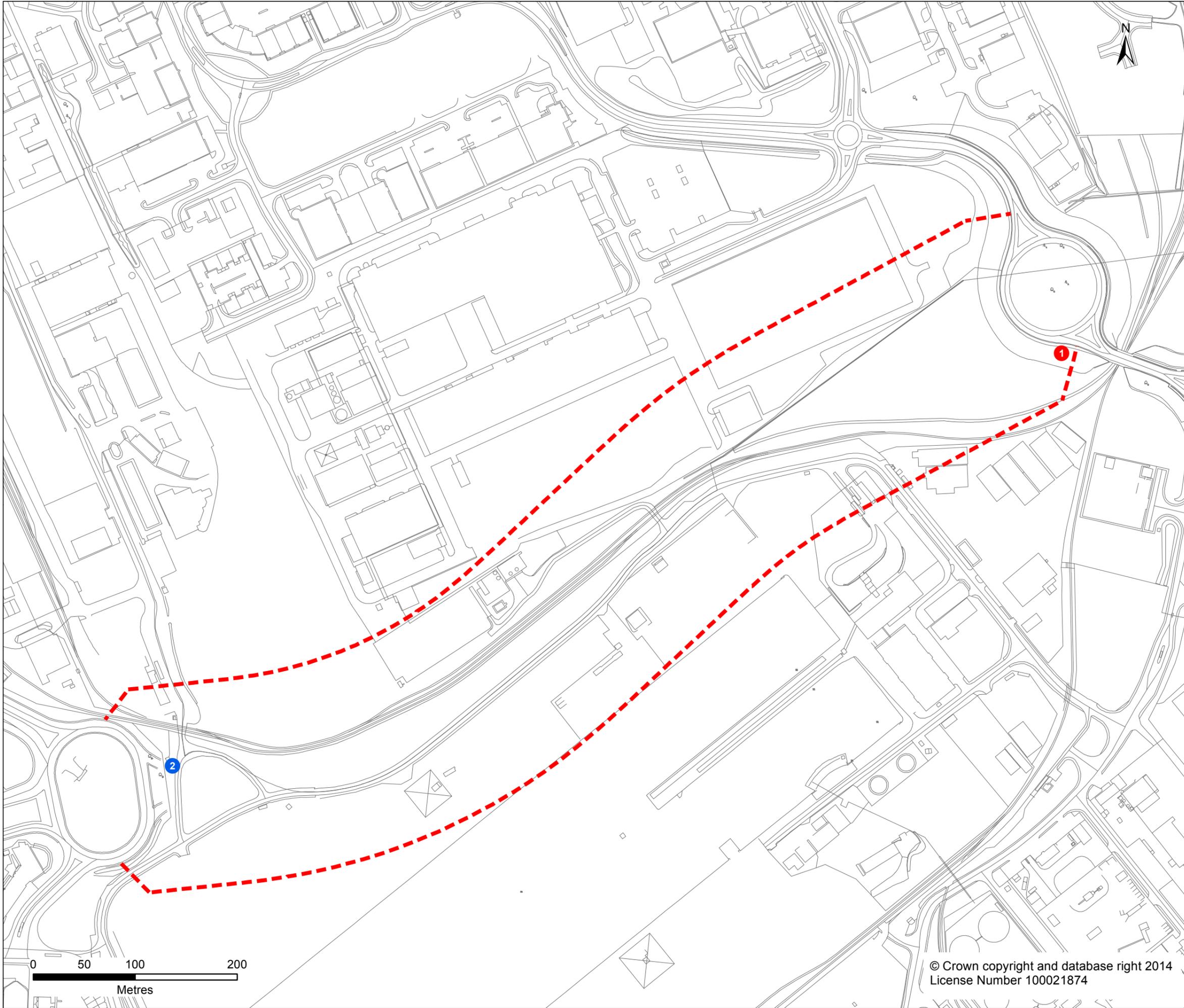
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Plot Date: 06/10/2014



- - - Survey Area
- SM2 Location 1
- SM2 Location 2

Rev	Date	Description	By	Chk	App
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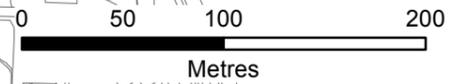
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Site/Project:  
**EASTERN BAY LINK  
QUEENS GATE RBT  
TO OCEAN WAY RBT**

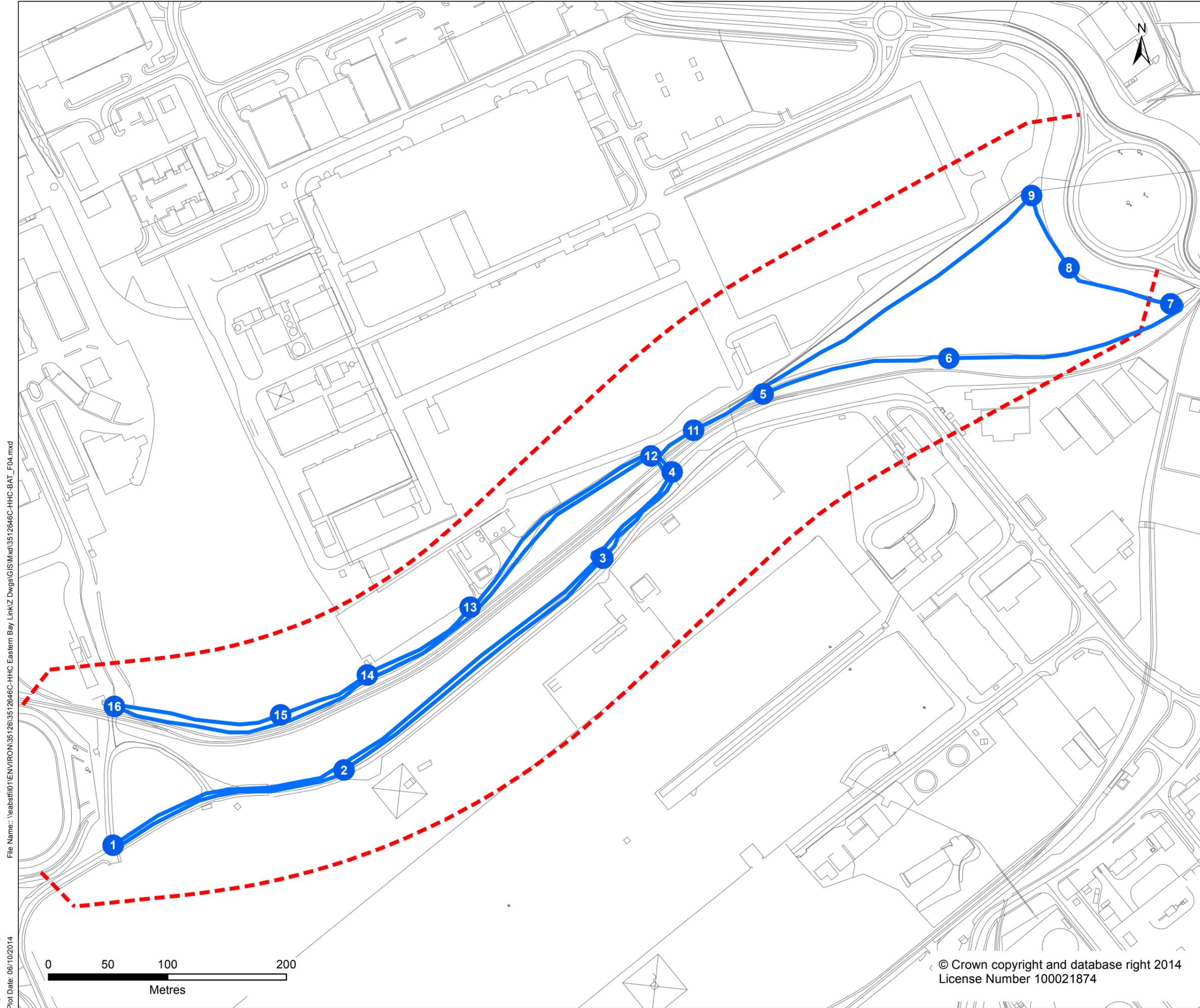
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Project Number: <b>3512646C-HHC</b>	Drawing Number: <b>FIGURE 3</b>	Revision:	



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- - - Survey Area
- Transect Route
- Point Count Location

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 Login: Caroline Broughton  
 Plot Date: 06/10/2014

Rev	Date	Description	By	Chk	App

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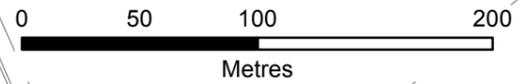
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**WELSH GOVERNMENT**

Site/Project:  
**EASTERN BAY LINK  
QUEENS GATE RBT  
TO OCEAN WAY RBT**

Title:  
**AMENDED BAT TRANSECT  
AND STOPS**

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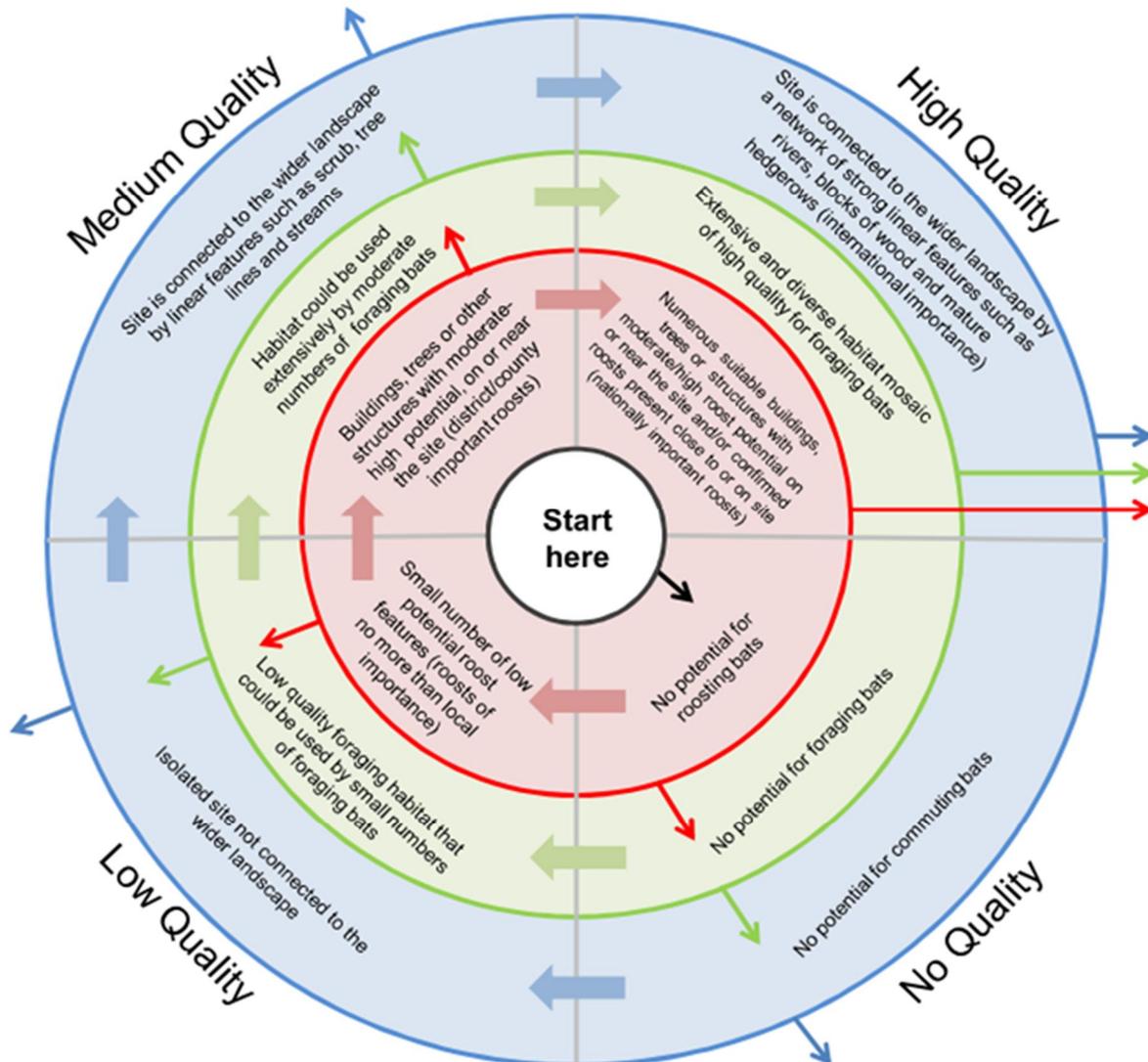


APPENDIX A

**APPENDIX A – HABITAT QUALITY  
ASSESSMENT PROTOCOL**



## Bat Habitat Quality Assessment Protocol



**Guidance notes:**

This assessment wheel is to be used similarly to a flow diagram. Each band represents a different bat habitat feature across the survey area: **roosting potential**, **foraging potential** and **commuting potential**.

If the statement you read is correct, follow the thin arrow to the next feature. If the statement is incorrect, follow the thick arrows clockwise around the wheel, until you find a statement which matches that habitat you are assessing, then continue onwards to the next level.

Notice that you are unable to go anti-clockwise around the wheel. The wheel automatically categorises the habitat by its highest quality feature, irrelevant of the quality of other habitat features onsite.

All statements used in the wheel have been based on Hundt. L (2011) Bat Surveys – Good Practice Guidelines 2<sup>nd</sup> Edition, Surveying for onshore wind farms (Bat Conservation Trust ).