



# Bat Tree Method Statement

**Cardiff Crossrail Phase 1**

**W002548-AME-XX-XX-RP-NYE-00002**

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## Document Control Sheet

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# 1. Introduction

## 1.1. Project Description

Amey Consulting has been commissioned by GRAHAM to produce a precautionary method statement for trees with bat roost suitability, in relation to proposed works for Stage 1 of the Cardiff Crossrail Scheme, hereafter referred to as 'the proposed development'. The proposed development consists of the construction of a tram-train connection between Cardiff Central Station and the existing Cardiff Bay Station. From a proposed stop at Cardiff Central station, the route of the tramline will proceed through Callaghan Square, interfacing with the highway alignments at Tresillian Way, Callaghan Square and Bute Street and will connect to the existing Bay Line to the north of Butetown Station, which is currently under construction as part of the Core Valley Lines (CVL) Transformation. The tram-train vehicles will then travel on the Bay line, through to a new platform at Cardiff Bay station.

The purpose of the Cardiff Crossrail scheme is to connect the city's newest developments and existing disconnected communities to the city centre and key employment hubs. The proposed development will enhance connectivity, quality and network performance between Cardiff Bay and Cardiff Central and is a joint venture between TfW and Cardiff Council.

A Preliminary Ecological Appraisal (PEA) of the proposed development was undertaken by Mott MacDonald Limited in September 2023 and September 2024 (Mott MacDonald Limited, 2025a); which identified habitats with the potential to support roosting, foraging and/or commuting bats within and immediately adjacent to the proposed works area. Bat surveys, including Ground Level Tree Assessments (GLTAs) were subsequently carried out by Mott MacDonald Limited in 2024 (Mott MacDonald Limited, 2025b).

## 1.2. Proposed Works

The proposed development comprises two distinct areas located within the urban area of Cardiff City Centre, extending from the southern car park of Cardiff Central Station to Cardiff Bay, with roads, pavements and buildings making up a large portion of the surrounding habitats. Other habitat types are scattered throughout, such as areas of dense scrub, modified grassland, lines of broadleaved trees and native hedgerows, all of which have likely been planted as landscaping.

The proposed works will consist of the following:

- The construction of a new two platform Cardiff Central tram stop, located within the southern car park of Cardiff Central railway station;
- The construction of a new double-track light rail alignment through Callaghan Square, interfacing with the highway alignments at Tresillian Way, Callaghan Square, Bute Street and Herbert Street. This will include the removal of an existing roundabout, landscape planting and associated road infrastructure;
- Highway alterations following the installation of the new double-track light rail alignment through Callaghan Square, which will be undertaken by Cardiff Council;
- The construction of a new track connection to the existing Cardiff Bay railway line via a ramped structure to the north of Butetown station. This station is currently under construction as part of the Core Valley Lines (CVL) Transformation of the existing railway line; and
- The tram-train vehicles will then travel on the Cardiff Bay line to a new Platform 3 at Cardiff Bay station.

# 2. Ecology and Legislation

## 2.1. Ecology

Some species of bat (*Chiroptera* sp.) are only as long and wide as a human thumb, so can crawl into tiny cracks and crevices. They have a small body covered in brown or grey fur on their backs and are usually paler beneath, with comparatively large wings that are folded against their body while roosting. Almost any

suitable crevice greater than 50mm deep and 12mm wide can be used as a roost. Bat signs at roosts most commonly take the form of droppings, staining, scratching or food remains.

Bats breed between May and July and hibernate between November and March. They tend to move between several roosts throughout the year to suit the environmental conditions (such as temperature and seasonal foraging resources). As nocturnal creatures, they are sensitive to noise and light.

Trees such as oak, beech and ash are particularly suitable for bats, but any woodland or tree has potential for a bat roost – especially if it has hollows in the trunk or branches, woodpecker holes, loose bark, cracks, splits, thick ivy or root cavities. Almost any building, tree or suitably built structure can be considered as having some potential to support bat roosts at some time of the year.

## 2.2. Legislation

Bats are fully protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy any structure or place used for shelter or protection by a bat (even if bats are not present in the roost);
- Intentionally or recklessly obstruct access to a structure or place which it uses for that purpose; or
- Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

To undertake activities that would otherwise be an offence under the above legislation, a European Protected Species Licence (EPSL) must be applied for from the statutory authority; in this case Natural Resources Wales (NRW).

## 3. Ecological Baseline and Rationale

Habitats with the potential to support roosting, foraging and commuting bats were identified within and adjacent to the proposed development by Mott MacDonald during the PEA. Where direct impacts from the proposed development were anticipated, all structures and trees were scoped in for further survey in the form of Preliminary Roost Assessments (PRAs) and GLTAs, with presence/likely absence surveys carried out where required (Mott MacDonald Limited, 2025b).

Descriptions of trees identified with bat roost suitability are provided in Table 1 below. The locations of the trees are illustrated in the Bat Survey Results mapping in Appendix A (Mott MacDonald Limited, 2025b).

Table 1: Trees with Bat Roost Suitability

TREE ID	BAT ROOST SUITABILITY	TREE AGE AND SPECIES	HIBERNATION POTENTIAL	PRF DESCRIPTION
T1	PRF-I	Semi-mature Italian alder ( <i>Alnus cordata</i> )	No	Fluting within the trunk at 2m high facing west. The shallow feature is mostly open and exposed but may provide shelter for an individual crevice-dwelling bat, opportunistically.
T2	PRF-I	Semi-mature lime sp. ( <i>Tilia</i> sp.)	No	A callus roll at approximately 3m high facing north. The cavity is approximately 10cm in diameter at the entrance and is upwards facing, exposing the feature to the elements. The feature may provide limited shelter for an individual crevice-dwelling bat species.
T3	NONE	Mature large-leaved lime ( <i>Tilia platyphyllos</i> )	No	An upward facing branch at 2m high. The potential feature was inspected and did not lead into the trunk.

TREE ID	BAT ROOST SUITABILITY	TREE AGE AND SPECIES	HIBERNATION POTENTIAL	PRF DESCRIPTION
T4	PRF-I	Semi-mature large leaved lime	No	Three callus rolls at approximately 2m high, facing south. All three cavities only extend 4cm inwards, providing very limited shelter for use by individual bats only.
T5	PRF-I	Mature lime sp.	No	A callus roll at 5m high, facing south. The feature is approximately 5cm in diameter at the entrance and is upwards facing and exposed to the elements. May provide limited shelter for an individual crevice-dwelling bat species. Weld at 6m high, facing north. The feature may provide a small cavity suitable for use by individual crevice-dwelling bat species.
T6	PRF-I	Mature lime sp.	No	A callus roll at 5m high, facing south. The feature is approximately 5cm in diameter at the entrance and is upwards facing and exposed to the elements. May provide limited shelter for an individual crevice-dwelling bat species.
T7	PRF-I	Mature lime sp.	No	Two knot holes at 4m high facing south that may lead to a cavity providing limited suitability for individual crevice-dwelling bat species. The features are on average 4cm in diameter at the entrance and are upwards facing and exposed to the elements, limiting their suitability for roosting bats.

A total of seven trees were identified with potential roost features (PRFs) following the GLTAs. Three of these trees were subject to endoscope inspection surveys (aerial and ground level) in June 2024. Two trees (T1 and T4) were identified as being suitable for individual roosting bats only (PRF-I), while the third tree (T3) was found to have no suitability to support roosting bats (NONE). No evidence of roosting bats was recorded within the surveyed trees (Mott MacDonald Limited, 2025b).

Due to the health and safety risks associated with working at height in proximity to main roads and railway lines, four trees (T2, T5, T6 and T7) could not be inspected using an endoscope. All the identified PRFs on these trees were located on thin branches and are considered likely to provide roosting opportunities for individual bats only (PRF-I) and are unlikely to support a substantial roost (Mott MacDonald Limited, 2025b).

Nevertheless, in the absence of mitigation, bats which may be roosting within these trees could be impacted during the tree felling works, if present. Consequently, works will be undertaken under a precautionary method statement following the procedures set out in Section 4 to safeguard bat species.

## 4. Proposed Safeguards

### 4.1. Avoidance

The removal of trees should be avoided where possible. It is recommended that the design of the proposed works aim to minimise the impact on bat species where possible by maintaining lines of connected habitat throughout Callaghan Square.

### 4.2. Prior to Works

Where accessible, pre-works check for evidence of roosting bats within PRF-I trees (T2, T5, T6 and T7) should be undertaken by a suitably qualified ecologist following best practice methodology (Collins, 2023).

The ecologist will have access to all historic survey data and reports, including the initial assessments and locations of trees identified with bat roost suitability.

Should evidence of roosting bats be identified during these checks, all works should cease in the area, and a licence to undertake the works will be applied for through consultation with NRW.

### 4.3. Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) will be on-site to supervise all works to be undertaken within suitable bat habitat.

The ECoW will be responsible for delivering toolbox talks (Appendix B) to contractors, searching for and confirming absence of bats within the works area and ensuring compliance with the working methodologies given below. The briefing will raise awareness of the potential use of the site by bats, their legislative protection, and will provide a mechanism for reporting of any significant sightings. A record of induction is included in Appendix C which is to be signed by all site operatives following the briefing as confirmation of understanding the proposed working methodology.

Should the ECoW find evidence of any bat species during any of the activities listed below, all works will cease, and a licence will be applied for through consultation with NRW.

### 4.4. Soft-felling Methodology

Trees assessed as PRF-I (suitable to support individual roosting bats) will be soft-felled under the supervision of the ECoW, following the methodology described below.

- The ECoW will visually inspect the trees to be felled for signs of bats prior to works beginning.
- The ECoW with a Natural Resources Wales (NRW) bat licence (or accredited agent) will endoscope any Potential Roost Features (PRFs), where suitable based on the GLTA results, by prior to soft felling.
- Sectional felling of each limb/trunk section followed by a visual inspection of all features with bat roost potential for presence of bats.
- If additional PRFs are found, then the ECoW will advise how to safely remove these as necessary.
- The ECoW will ensure that all felled sections of the tree are checked for the presence of roosting bats before they are removed from site.
- If possible, the felled sections of the tree should be left *in-situ* for at least 24 hours with any cavity entrance facing upwards to allow any bats present to escape.
- If bats are discovered during felling, then the ECoW will stop works to the tree and contact NRW for advice as a licence and/or mitigation would likely be required.

### 4.5. Lighting

If works need to take place at night, any artificial lighting should be designed sensitively to minimise the impact on bat species (BCT & ILP, 2023). This may include the use of directional lighting to minimise light spill into adjacent habitats which could be used by foraging and commuting bats. The potential impact of lighting on bat species should be assessed by the ECoW and adjustments made, if necessary.

### 4.6. Procedure if Other Species Discovered on Site

Should any other (non-bat) protected/notable species be discovered during the works, the supervising ECoW will be contacted for advice on how to proceed.

## 5. References

Bat Conservation Trust and Institution of Lighting Professionals (2023) *Bats and Artificial Lighting at Night*. [online] Available at: [theilp.org.uk](http://theilp.org.uk)

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

Mott MacDonald Limited (2025a). *Cardiff Crossrail Preliminary Ecological Appraisal Report* (Report reference: W002548-MML-XX-XX-RP-NYE-10005).

Mott MacDonald Limited (2025b). *Cardiff Crossrail Bat Survey Report* (Report reference: W002548-MML-XX-XX-RP-NYE-10002).

**Appendix A: Bat Survey Results Map (Mott MacDonald Limited, 2025b)**

## Appendix B: Toolbox Talk

### Bats

#### What are they and how are they recognised?

Some species of bat are only as long and wide as a human thumb, so can crawl into tiny crack and crevices. They have a small body covered in brown or grey fur on their backs and are usually paler beneath, with comparatively large wings that are folded against their body while roosting. Almost any suitable crevice greater than 50mm deep and 12mm wide can be used as a roost. Bat signs at roosts most commonly take the form of droppings, staining, scratching or food remains.



#### When and where are they found?

Bats breed between May and July and hibernate between November and March. They tend to move between several roosts throughout the year to suit the environmental conditions (such as temperature and seasonal foraging resource). As nocturnal creatures they are sensitive to noise and light.

Trees such as oak, beech and ash are particularly suitable for bats, but any woodland or tree has potential for a bat roost – especially if it has hollows in the trunk or branches, woodpecker holes, loose bark, cracks, splits, thick ivy or root cavities. Almost any building, tree or suitable built structure can be considered as having some potential to support bat roosts at some time of the year.

#### What should be done if a Bat or Bat Roost is found?

#### **STOP ALL WORKS IMMEDIATELY!**

If a bat or bat evidence of bats is found works should stop immediately in this area and the Ecological Site Co-ordinator or Ecological Clerk of Works (ECoW) contacted in the first instance. A licence will be required from Natural Resources Wales for works to continue.

Contractors should not handle the bat (or bats) unless under the direct instruction of the Amey bat specialist. Gloves should be worn during any handling as a small number of bats in the UK have been found to carry a rabies virus called European Bat Lyssavirus (EBLV), which is transmitted via a bite or scratch from an infected animal.



Anyone who is bitten or scratched by a bat must wash the area of the bite thoroughly but gently with soap and water, and then immediately attend the hospital for post exposure treatment.

#### Contact Details

#### Supervising Ecologist

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