

Wales and Borders Rail Service and South Wales Metro

TRAN01 - CVL Transformation

**Bat Constraints Technical Note: Quakers Yard Station |
A01**

02/11/21

TRAN01-KAW-R1-MER-RPT-Y-EN-000075



Document Control Sheet

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1. Introduction

This document reports on the findings of bat surveys undertaken at Quakers Yard Station located along the route section Abercynon to Merthyr Tydfil (RS1MER), hereafter referred to as 'the site'. This site forms part of the upgrade to the Core Valley Lines (CVL) as part of the wider South Wales Metro project.

1.1 Site Description

The proposed development is situated at Quakers Yard Station near Treharris, located at the southern end of the Abercynon to Merthyr Tydfil (RS1MER) route section.

The site is an existing platform on the northern side of an existing single-track railway (the down side) with an existing footpath of hardstanding connecting the platform to the Taff Vale Estate. The platform is lined with scrub, tall ruderal and introduced shrub habitats, and is connected to broadleaved woodland which lines the path to the level crossing located on the western boundary of the site. A strip of broadleaved woodland borders the southern side of the existing single-track railway (the up side).

The village of Edwardsville surrounds the site to the north. Broadleaved woodland extends to the east and west. Pontygwaith Nature Reserve is located immediately south of Quakers Yard Station and is bounded on one side by the River Taff, which is situated approximately 0.1km south of the site.

Quakers Yard Station has a central grid reference of ST 08625 96549, refer to Table 1 below.

Table 1: Site Location Details

ELR and Mileage	Route Section	Grid Reference	Latitude and Longitude
CAM 17m 73ch	RS1MER	ST 08625 96549	51.66027063, -3.322429103

1.2 Proposed Development

The proposed development includes:

- Re-designing the track through the station to include two railway lines;
- Construction of a new footbridge with ramp access and footpath parallel to Taff Vale Estate;
- Platform extension of the existing down main platform with new shelter and cycle hoops;
- Construction of a new up main platform with new shelter;
- Construction of a new Public Right of Way (PRoW) ramp connecting the proposed up main platform to a new foot/cycle path which will link to an existing foot/cycle path to the southwest of the site; and
- Removal of the existing level crossing and fencing to prevent access to this area.

An as yet, unquantified area of broadleaved woodland to the south and north of the railway line will require removal to accommodate the proposed development, as well as areas of scrub to the north by the existing platform. A site compound is not required to facilitate the works for this proposed development. Construction access routes are to be confirmed and the anticipated start date for the proposed development is likely to be January 2022.

2. Legislation

Bats are fully protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (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 NRW.

3. Methods

3.1 Desk Study

A desk study was undertaken and reported within the Preliminary Ecological Appraisal: Quakers Yard Station (Amy Infrastructure Wales (AIW), 2021a). This provided a review of existing information about the habitats and protected species present within the site boundary. This included a data search request to the South East Wales Biodiversity Records Centre (SEWBReC) for protected and priority species present within 2km of the site boundary, including bats.

3.2 Field Survey

3.2.1 Preliminary Ground Level Tree Assessment (PGLRA)

An initial PGLRA for trees south of the platform was carried out by Kathryn Loat BSc (Hons) MSc MCIEEM on 31 July 2020. A PGLRA of the trees to the north of the platform was carried out Stephanie Cox BSc (Hons) ACIEEM and Daniella Ord-Hume BSc (Hons) on 13 August 2020. In January 2021 Amey Ecologists Kathryn Loat BSc (Hons) MSc MCIEEM, Stephanie Cox BSc (Hons) ACIEEM and Daniella Ord-Hume BSc (Hons) carried out an assessment of the trees within the on-track habitats. These surveys were carried out in accordance with best practice guidance set out in 'Bat Surveys - Good Practice Guidelines' (Collins, 2016).

These surveys assessed the potential of a structure or tree to support a bat roost. This involves a systematic search of a structure for potential or actual bat access points and/or any evidence of bats. Within trees, this involves an external inspection of Potential Roost Features (PRFs) and/or any evidence of bats. PRFs that may be used by bats include:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Partially detached bark;
- Knot holes arising from naturally shed branches;
- Other holes or cavities, including butt rots;
- Double leaders forming compression forks;
- Gaps between overlapping stems or branches;
- Cankers; and
- Partially detached ivy with stem diameter in excess of 50mm.

Signs of a bat roost, besides the actual presence of bats includes:

- Bat droppings;
- Odour;
- Audible squeaking at dusk or in warm weather; and
- Staining.

Using the above, the trees or structures were then evaluated and assigned as negligible, low, moderate or high suitability to support roosting bats as per the BCT guidelines (Collins, 2016), refer to Table 2 below.

Table 2: BCT Guidelines for Assessing the Potential Suitability of Trees or Structures for Roosting Bats.

Suitability	Description of Roosting Habitats
Negligible	Negligible potential roost sites within a tree or structure likely to be used by roosting bats.
Low	A tree or structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A tree or structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree or structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

3.2.2 Dusk Emergence Survey

Following the above scoping exercise, one tree (MER 10, ST 08570 96563) was subject to a dusk emergence survey to determine the presence / likely absence of roosting bats within the tree. Details of the surveys and weather conditions are detailed in Table 3 below. The survey of tree MER 10 were undertaken as part of the bat tree surveys for RS1MER route section which encompasses part of the site. The full details of which will be issued in a separate bat survey report (AIW, 2021b; Bat Survey Report: RS1MER Trees; Report reference: [TRAN01-KAW-R1-MER-RPT-Y-EN-000072](#)).

Table 3: Dusk Emergence Survey Details and Conditions

Tree Number	Survey Conditions							
	Date	Type	Surveyors	Sunset/Sun rise (BST)	Start/End Time	Min Temp (°C)	Rain	Wind (Beaufort Scale)
MER 10	21/07/2021	Dusk	DO, JH	05:21 / 21:16	21:12 / 22:57*	22	None	1

*Survey did not follow BCT guidance, see Section 3.3 Limitations and Assumptions.

All surveys were undertaken following BCT guidance (Collins, 2016). Surveys were carried out using bat detectors (Batloggers and Echo Meter Touch) to identify the bats species observed (if any) and to record any behaviour. The recordings were then analysed through Analook software.

Surveyors were positioned appropriately to view the tree as far as practically possible. All surveys were undertaken by suitably qualified ecologists.

3.2.3 Endoscope Inspection Survey

Following the above scoping exercise, one tree (QY2, ST 08496 96583) had features that were easily accessible from ground level, and hence was subject to an endoscope inspection survey. Details of the surveys and weather conditions are in Table 4 below:

Table 4: Endoscope Inspection Survey Details and Conditions

Tree Number	Survey Conditions					
	Date	Type	Surveyor	Sunset/Sunrise (BST)	Approximate time of Survey	Weather
QY2	27/05/2021	Endoscope Inspection Survey	Kathryn Loat BSc (Hons) MSc MCIEEM	21:16 / 05:05	11:00	Warm and dry
	23/08/2021	Endoscope Inspection Survey	Kathryn Loat BSc (Hons) MSc MCIEEM	20:08 / 06:19	11:00	Warm and dry

Surveys were carried out using an endoscope (Rigid See Snake) and carried out by competent, appropriately licensed Amey Ecologist Kathryn Loat BSc (Hons) MSc MCIEEM (NRW bat licence number: S087584/1).

3.3 Limitations and Assumptions

The Chartered Institute of Ecology and Environmental Management (CIEEM) issued advice on the lifespan of ecological reports and surveys in 2019 (CIEEM, 2019). Whilst this will vary on a case by case basis, this survey report is likely to be valid for 18 months. After this time, a professional ecologist should be consulted on the validity of this report.

Different bat species emerge from a roost at differing times in relation to sunset. Therefore, it is important to ensure that tree surveys start 15 minutes before sunset to ensure the activity of all species that may be present is recorded. Due to prolonged activity on the line, surveyors were not granted access to the railway infrastructure in time to fulfil this requirement during the further surveys of MER 10. Surveyors arrived at trees beyond the time considered adequate as per BCT guidance (Collins 2016) and were unable to complete the two dusk emergence / dawn re-entry surveys required for a tree with moderate bat roost potential. Hence, this is considered a significant constraint and the surveys are considered invalid. Full details of the route section surveys are provided in a separate bat survey report (AIW 2021b; Bat Survey Report: RS1MER Trees; Report reference: TRAN01-KAW-R1-MER-RPT-Y-EN-000072).

4. Results

4.1 Desk Study

4.1.1 Statutory Designated Sites for Bats

There were no statutory designated sites for bats recorded within 10km of the RS1MER route section.

4.1.2 Biological Records

There were 107 records of bats which returned within a 2km radius of the site, species recorded comprise (in order of closest to furthest record from the site): common pipistrelle (*Pipistrellus pipistrellus*) was found within site boundary, soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*), pipistrelle species (*Pipistrellus* sp.), brown long-eared bat (*Plecotus auritus*), myotis species (*Myotis* sp.), long-eared bat species (*Plecotus* sp.), unidentified pipistrelle species (*Pipistrellus* sp.) and Daubenton's bat (*Myotis daubentonii*).

A number of records of roosts were returned within the desk study, species comprise: pipistrelle species, common pipistrelle, pipistrelle agg., soprano pipistrelle, long-eared bat species and brown long-eared bat.

4.2 Field Survey

4.2.1 Preliminary Ground Level Roost Assessment (PGLRA)

All trees within the site were assessed for their bat roost potential. The results of these surveys are detailed below in Table 5. Photographs are provided in Appendix B.

Table 5: Scoping Survey Results

Tree Number	Species	Potential Roost Features (PRFs)	Potential to Support Bats
QY1	Ash (<i>Fraxinus excelsior</i>)	Small amounts of peeling bark on the stem and one limb.	Low
QY2	Silver birch (<i>Betula pendula</i>)	Large butt-rot PRF with two separate cavities. Cavity 1 extended approximately 60cm vertically upwards into the stem. Cavity 2 extended approximately 30cm horizontally through the stem with a second entrance to the side. Both cavities appeared to be dry.	Moderate
MER 10	Silver birch	Brown rot canker cavity PRF at 3.5m from base.	Moderate

4.2.2 Dusk Emergence Survey

The results of the dusk emergence survey undertaken on MER 10 (ST 08570 96563) detailed in Table 6 below:

Table 6: Dusk Emergence Survey Results

Tree Number	Location (Grid Reference)	Location (ELR Mileage and Chain)	Survey 1		Survey 2		Notes
			Date	Type	Date	Type	
MER 10	ST 08570 96563	CAM 17m 76ch	21/07/2021	Dusk Emergence Survey	N/A	N/A	No emergence recorded. Moderate foraging and commuting activity along rail corridor, mainly from P.pip and P.pyg. with occasional noctule.

4.2.3 Endoscope Inspection Survey

One tree (QY2, ST 08496 96583) within the site was subject to further survey in 2021. The results of which are detailed in table below. No bat roosts were recorded during these surveys.

Tree Number	Location (Grid Reference)	Survey 1			Survey 2			Notes
		Date	Type	Bats Present? (Y/N/Poss)	Date	Type	Bats Present? (Y/N/Poss)	

QY2	ST 08496 96583	27/05/2021	Endoscope Inspection Survey	N	23/08/2021	Endoscope Inspection Survey	N	No evidence of bats or their presence was recorded.
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Table 7: Endoscope Inspection Survey Results

5. Conclusions and Recommendations

A total of three trees on site were determined to have bat roost potential. Of which, one tree (QY2, ST 08496 96583) was subject to endoscope inspection surveys. No bat roosts or evidence of bats were recorded during these further surveys. As such, no further recommendations are given with regards to tree QY2.

Bat tree surveys have been completed for the RS1MER route section which encompasses part of the site and includes tree MER 10 (ST 08570 96563) which falls within the site boundary for the Quakers Yard development. Full details of the route section surveys are provided in a separate bat survey report (AIW 2021b; Bat Survey Report: RS1MER Trees; Report reference: TRAN01-KAW-R1-MER-RPT-Y-EN-000072). Due to the survey limitations detailed in Section 3.3 these surveys are considered incomplete, invalid and cannot determine the presence or likely absence of bat roosts. Should clearance of tree MER 10 be required, a bat licence will be required from NRW in order to disturb, damage, destroy or modify the tree. As the tree have not been adequately surveyed this licence should follow the methodology used on RS0R2P and RS1ABD route sections (Bat Development Licence for Tree Removal R2P/ABD (Document Reference: TRAN01-KAW-ZZ-CVL-KPC-Y-EN-000023); Licence Number S088367/1).

It is recommended that the tree QY1 (ST 08475 96630) assessed as having low suitability to support roosting bats should be felled under a precautionary method statement under the supervision of an ecologist. This will involve careful stripping of the ivy and bark and sectional felling with hand tools so that the ecologist can inspect all areas of peeling bark for presence of bats prior to the wood being chipped. If additional PRFs are found, then the ecologist will advise how to safely remove these as necessary. If bats are discovered during felling, then the ecologist will stop works to the tree and contact Natural Resources Wales (NRW) for advice as a licence and/or mitigation would likely be required. Felling can be carried out at any time of year, but the overall likelihood of encountering bats is lower from November to March due to negligible hibernation potential.

Should construction works need to be undertaken at night, directional lighting should be employed to minimise light spill into adjacent habitats, particularly the treeline to the south of the station alongside which foraging and commuting bats were recorded during the dusk emergence surveys.

6. References

CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys. [Accessed online <https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/>] (Accessed on 12/06/21)

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

Amey Infrastructure Wales (2021a) Preliminary Ecological Appraisal: Quakers Yard Station (Report reference: TRAN01-KAW-R1-MER-RPT-Y-EN-000063)

Amey Infrastructure Wales (2021b) Bat Survey Report: RS1MER Trees (Report reference: TRAN01-R1-MER-RPT-Y-EN-000072)



Appendix A: Figure

TRAN01-KAW-R1-MER-YPA-Y-EN-000382



- Legend
- Track Alignment
 - Indicative Site Boundary
 - Trees with Bat Roost Potential**
 - ▲ Low
 - ▲ Moderate

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	Designed: SC				Date: 16/03/2021
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Project Name :

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Drawing Title :

Quakers Yard
Trees with the Potential to Support Bats

Original Dwg Size : A3	Scale : 1:1,000
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Drawing Status :	Suitability
Fit for Construction Approval	S4
Figure No :	
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Appendix B: Photographs



Photo 1: QY1 Ash with low bat roost potential. Photo 2: QY2 Silver birch with moderate bat roost potential.



Photo 3: MER 10 Silver birch with moderate bat roost potential.