Appendix 4

Preliminary Ground Level Bat Roost Assessment

For Trees at Proposed Watchtower Path at Trossachs Pier, Loch Katrine

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EXECUTIVE SUMMARY

A preliminary survey to assess the potential likelihood of bat roosting features within trees at the proposed Watchtower path at Trossachs Pier was carried out. A day-time ground level roost potential assessment was carried out. The tree survey demonstrated a negligible or low potential for the presence of bat roosting features for 61 trees surveyed, and moderate potential for 5 trees.

Bats are a protected species, and it is an offence to intentionally, or recklessly, disturb a bat, in a shelter or resting place; or to damage or destroy a breeding or resting site. All bats and their roosts are legally protected because bats return to the same places every year, a bat roost is protected even if there are no bats there. No further surveys of trees with negligible to low potential bat roost features are required. Further survey of moderate bat roost potential trees was carried out, this included an endoscope inspection of potential roost features for trees displaying moderate potential and an emergence survey. No evidence of bats or roosting bats was recorded during the surveys, therefore, no further surveys are required.

The proposed footpath will not have a detrimental impact on the bat population in the area as no evidence of bats or their roosts were identified in the trees and the foraging and commuting habitats will be unaffected. No further surveys are recommended at this time, however, there is always the possibility that bats can be found unexpectedly once work commences, in this eventuality appropriate action should be taken.

1. INTRODUCTION

1.1 Site location

The Watchtower footpath is accessed from the car park at Trossachs Pier on the east shore of Loch Katrine. The start of the path is at an altitude of 120m above sea level at grid reference NN 496073. *Appendix 1 Location Plan*

1.2 Site description

The proposed path is through an area of woodland which forms part of the Ben A'an and Brenachoile Woods Special Site of Scientific Interest and Trossachs Wood Special Area of Conservation. Tree species include alder (*Alnus glutinosa*); silver birch (*Betula pendula*); downy birch (*Betula pubescens*); sessile oak (*Quercus petraea*); and rowan (*Sorbus acuparia*).

1.3 Proposed works

It is proposed to construct a footpath to the watchtower viewpoint. Appendix 2 Existing Site Plan

2. SURVEY AND SITE ASSESSMENT

2.1 Objectives

The survey aims to make an appraisal of the potential bat roosting features within trees at the site. The survey specifically looked for the presence of potential bat roosting features within these trees.

2.2 Methods

2.2.1 Pre-survey data search

Web-based sources of information were examined, principally the National Biodiversity Network

(NBN) Gateway (http://data.nbn.org.uk/) where a radius of 5km from the centre of the proposed development was searched to provide suitable coverage of the area. Nature designation classifications were obtained from NatureScot, formally Scottish Natural Heritage, Site Link (https://sitelink.nature.scot/home). Other websites searched include Bat Conservation Trust (BCT) (http://www.bats.org.uk/). Positive records for species present in the survey area can be used to inform the assessment of biodiversity on the site but the lack of records cannot be taken to imply that bat species are absent.

2.2.2 Survey methodology

A site visit was carried out after receiving information from Murray Watt, Partner, MW Consultants. A walk over survey was carried out and an overall habitat assessment was made. A bat survey was carried out incorporating a preliminary ecological appraisal, and preliminary potential roosting feature assessment. The trees were surveyed from ground level following Good Practice Guidelines, 3rd Edition. Bat Conservation Trust (BCT), Collins, J (2016) and methods from British Standard 8596-2015 Surveying for bats in trees and woodland – guide (2015). Equipment included a powerful torch, binoculars, and an endoscope.

2.2.3 Survey area

The survey area covered the trees on the site as identified in the tree survey and 2 additional trees at the watchtower viewpoint.

2.2.4 Timings, types, and weather conditions of Field Surveys

24/09/2020 Habitat survey, tree roost assessment, emergence and activity survey - temperature 14 degrees Celsius; wind speed 5mph; cloud cover 50%; no precipitation; good visibility.

2.2.5 Limitations

Survey data is accurate on the date that the survey took place and is based upon observations of the site as it currently exists. All trees were surveyed from ground level only. Tree condition should be re-evaluated after extremes of weather that may affect the trees' health or stability. Any alteration to the site and the context in which these trees grow will make it necessary to re-assess tree condition. Trees are dynamic and complex organisms and are subject to change.

No soil, pathogen or tree samples were taken; no drilling or other decay detection devices were employed; an endoscope was used for examining accessible tree cavities. No detailed assessment of the rooting zone and below ground tree physiology was made. All observations were made from within areas of public access.

2.2.6 Personnel

Emma O'Shea, Ecological Consultant, Tay Ecology, Bat Licence Number 103292 Emma has worked in the environmental sector for sixteen years, during which time she has gained a wealth of experience and expertise. During the last six years she has worked as an ecological consultant for Tay Ecology with lead responsibility for development projects requiring protected mammal species surveys and species licensing, she trained for her bat licence under Neil Middleton, Echoes Ecology on the Bat Skills Development Programme. Emma has a Postgraduate Diploma in Environmental Management from the Open University and is a member of the Institute of Environmental Impact and Assessment.

3. LEGISLATION AND POLICY GUIDANCE

Bats: All bats and their roosts are legally protected in Scotland by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) - "the Habitats Regulations". A bat roost is any structure or place which a bat or group of bats use for shelter or protection, because bats return to the same places every year, a bat roost is protected even if there are no bats there.

It is an offence to deliberately or recklessly: capture, injure or kill a wild bat; harass a wild bat or group of bats; disturb a wild bat in a roost (any structure or place it uses for shelter or protection); disturb a wild bat while it is rearing or otherwise caring for its young (this would be a 'maternity' roost); obstruct access to a bat roost or to otherwise deny the animal use of the roost; disturb such a wild bat in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of that species; disturb a wild bat in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or care for its young. It is also an offence to: damage or destroy a breeding site or resting place of such an animal (note: this does not need to be deliberate or reckless to constitute an offence); keep, transport, sell or exchange or offer for sale or exchange any wild bat or any part or derivative of one (if obtained after 10 June 1994).

4. BAT ECOLOGY

4.1 General Bat Ecology

In this part of Scotland there are 5 species of bat generally found: Common Pipistrelle (*Pipistrellus pipistrellus*); Soprano Pipistrelle (*Pipistrellus pygmaeus*); Brown Long-eared (*Plecotus auritus*); Daubenton's (*Myotis daubentonii*); and Natterer's (*Myotis nattereri*). The species of pipistrelle use trees and man-made structures to roost and can be found in both a rural and urban setting. Brown long-eared bats may roost in trees or often in old buildings with large attics, preferring buildings associated with mature woodland in which they can forage. Daubenton's roost close to still or running bodies of water, either in trees or structures such as bridges. Natterer's bats have a similar habitat to brown long-eared bats but are less common.

Female bats roost together in a colony from May until the autumn. They usually have one baby in June which is reliant on its mother for 2 months and will remain in the roost whilst the mother feeds. In the autumn, the colony will move from their warm summer roost, often in buildings, to a cooler winter roost which may be in trees, unheated buildings with thick stone walls, caves, and similar places. In their winter roost they become torpid as the weather cools and they hibernate. Male bats live in smaller groups or individually in cooler roosts such as steadings or tree holes and can be found in maternity colonies in the early autumn when mating takes place. Whilst bats are hibernating, they are particularly vulnerable to disturbance. Each time they wake it uses up their energy stores and with repeated disturbance the result can be their death.

4.2 Tree Roost Value and Importance

Bats use a range of different tree features throughout the year for roosting and rely on utilising a range of sites within an area. Bats move frequently between roosts as seasonal conditions vary. Assessing the importance of an area to bats initially considers the number of suitable features available to use as roost sites, aswell as the proximity to foraging sites and the connectivity with the wider landscape. Bats use linear landscape features such as high hedges, water courses, railway cuttings and tree lined roads to commute between their favoured roosting and foraging habitats.

The size of available features is also an important consideration because bats are social animals that live in colonies. Bats may roost as individuals, in small groups or as a colony, depending on the availability of roost sites, local environmental factors and according to their physiological requirements. Bats are long lived animals with a habitual nature, which when combined with their social lifestyles means that they make regular use of the same roost sites year after year. It is therefore possible to assess the value of certain tree features based on their age and longevity with consideration to a potential history of use that could be measured in decades.

The desirability of suitable roosting opportunities within a local context is another important consideration, and whether the full range of different roost conditions required during the bats' life cycle are available to them. For example, to raise their young bats choose very warm roosts, often in dead trees that are in full sun for most of the day, but they also need cool damp roosts to allow them to go into torpor and survive periods of wet or cold weather when their food may be in short supply.

4.3 Tree Features Used By Bats

Bats do not have the physical capacity to build nests or create cavities for roosting and are dependent on the availability of naturally occurring tree features which can be utilised for roosting. A single pipistrelle bat may roost under loose bark, in branch splits or behind ivy, such sites are frequently found in most areas. In contrast larger bats may prefer cavities, such as old woodpecker holes, which will accommodate larger numbers of bats. Larger features are less common, and their availability could influence the local diversity of bats.

Bats use a broad diversity of tree features for different reasons at different times of year. Research of bat roosting ecology combined with reports of roosts found during tree work appears to indicate that any feature that offers space for a bat to squeeze into could be used at some time. Bats appear to show no preference for the size, age or species of tree they use for roosting, but some tree species do appear to have a propensity to forming and holding onto features that are favoured by bats as roost sites. For example, tree species like oak, pine, willow, and sweet chestnut are prone to developing splits in their branches and trunks, while ash, beech, poplar, and sycamore tend to be associated with cavities in their trunk and main branches.

Bats have been recorded using more than 30 different roost sites over the course of one summer season, with some species having been observed moving roosts every 2-3 days, while others show commitment to a few favoured sites. This may be an indication of species preferences, availability of suitable tree features, or even a means of avoiding predation. However, other species exhibit loyalty to a smaller number of significant roost sites that are used preferentially over others that may offer similar conditions.

5. RESULTS

5.1 Pre-survey data search

The proposed site is in the Loch Lomond and Trossachs National Park (LLTNP); The Great Trossachs Forest National Nature Reserve (NNR); The Trossachs National Scenic Area (NSA); Ben A'an and Brenachoile Woods Special Site of Scientific Interest (SSSI); and Trossachs Wood Special Area of Conservation (SAC)

National Biodiversity Network confirmed within 5km radius: Daubenton's bat (*Myotis daubentonii*); Natterer's bat (*Myotis nattereri*); Soprano pipistrelle (*Pipistrellus pygmaeus*); Brown long-eared bat (*Plecotus auritus*).

5.2 Field surveys

5.2.1 Description of Habitats of potential value to bats

The woodland has potential for bats for commuting and foraging.

5.2.2 Bat Surveys

5.2.2.1 Preliminary roost assessment Lower footpath



Viewpoint trees

Upper footpath





5.2.2.2 Grading Criteria

The grading criteria considers a bat value rating based on identification of features such as peeling, plated bark, splits, hollows, decayed stems and trunks, coalesced decay seams, fissures, cracks, standing dead trees and climbing vegetation cover. The presence of such features is assessed together with suitability as a roost site and the type of roost it could be. For example, a large, open decay pocket is not as favourable for roosting as a large decay pocket with a narrow entrance, due to the increased exposure to the elements and predation experienced by the former. The longevity of such a feature is also considered.

The rating system provides a scoring method assessing the potential of a tree to provide features with suitable conditions for roosting bats. Additional notes will be taken when tree features are observed with evidence that could indicate current use by bats, but it should be noted that this is rarely found.

5.2.2.2 Scoring System for Grading Potential Roosting Features (PRFs) in Trees Adapted from Collins (2016, p.35)

No.	Value	Description of Potential Roosting Features (PRFs)					
0	Negligible	Negligible habitat features on site likely to be used by roosting bats.					
1	Low	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very, limited roosting potential eg. 1-2 minor PRFs for individual bats.	PRFs associated with feeding or night-time roosts, easily replaced elsewhere.	Sparse ivy cover, minor branch splits, small sections loose or flaking bark.	0-10 years.		
2	Moderate	PRFs provide a more secure form of roost for small groups of bats and individuals.	PRFs are common types of features	Dense ivy, significant branch splits, small cavities.	10-30 years.		
3	High	PRFs of significance, suitable for high priority roosts, used by large numbers of bats.	PRFs offering conditions that are uncommon or rare in the local area.	Large cavities, extensive branch or trunk splits, multiple features in the same tree.	30+ years.		
4	Confirmed Roost	Evidence found that indicates tree features are being used by bats.	Droppings found at the base of tree, below a cavity.	Bats heard 'chattering' inside a feature on a warm day or at dusk.	Bat(s) observed flying from a feature.		

5.2.2.3 Tree Survey Results for Preliminary Bat Roost Assessment Table 5.1 Tree Survey Schedule, numbers as Tree Survey

Tree No.	Species	Notes	Roosting Potential (0- 4) - category	Roost found	Proposed work	Implications for Proposed work
9662	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9663	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9664	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9665	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9666	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9667	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.

9668	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9669	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9670	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9671	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9672	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9673	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9674	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9675	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9676	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9677	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9678	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9679	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9680	Ash	A tree of negligible bat roost potential.	0 - Negligible	No	Fell	No further survey required.
9681	Common alder	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9682	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9683	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.

9684	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9685	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9686	Ash	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Fell	No further survey required.
9687	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Reduce	No further survey required.
9688	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9689	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9690	Common alder	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9691	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9692	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9693	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9694	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9695	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9696	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9697	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9698	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9699	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.

9700	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9701	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9702	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9703	Rowan	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9704	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9705	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9706	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9707	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9708	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9709	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9710	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9711	Scot's pine	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9712	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9713	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9714	Rowan	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9715	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9716	Downy birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.

9717	Downy birch	PRFs provide a more secure form of roost for small groups of bats and individuals. Small cavity at 2mE c.10cm by 5cm.	2 - Moderate	No	Retain	Further inspection required.
9718	Downy birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9719	Silver birch	PRFs provide a more secure form of roost for small groups of bats and individuals. Significant branch splits at 1.5-2mS c.10cm wide, and 3mE c.20cm by 5cm.	2 - Moderate	No	Retain	Further inspection required.
9720	Downy birch	PRFs provide a more secure form of roost for small groups of bats and individuals. Small cavity 1.5E c.5cm by 5cm.	2 - Moderate	No	Retain	Further inspection required.
9721	Norway spruce	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Fell	No further survey required.
9722	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9723	Scot's pine	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
9724	Silver birch	A tree of negligible bat roost potential.	0 - Negligible	No	Retain	No further survey required.
9725	Silver birch	A tree of sufficient size and age to contain PRFs features seen with only very, limited roosting potential. No PRF features visible from ground. No ivy cover, branch splits or flaking bark.	1 - Low	No	Retain	No further survey required.
NW 9720	Birch spp.	PRFs provide a more secure form of roost for small groups of bats and individuals. Significant branch split at 3mS c.10cm by 5cm.	2 - Moderate	No	Retain	Further inspection required.
NW 9720	Birch spp.	PRFs provide a more secure form of roost for small groups of bats and individuals. Small cavity at 1.2mS c.5cm by 5cm.	2 - Moderate	No	Retain	Further inspection required.

Table 5.1 shows that 61 trees have negligible or low bat roost potential features and therefore no further survey is required (Collins, 2016, p.51). Collins (2016, p.35) defines 'negligible' as 'a tree with negligible bat roost potential features' and 'low' as 'a tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very, limited roosting potential'.

Five trees have moderate bat roost potential features and further inspection is required (Collins, 2016, p.51). Collins (2016, p.35) defines 'moderate' as 'a tree with one or more potential roost sites which could be used by bats due to size, shelter, protection, conditions and surrounding habitat, but unlikely to support a roost of high conservation status'.

5.2.2.4 Further Inspection Moderate Trees

5 trees, 9717, 9719, 9720, and 2 trees NW of 9270 identified with moderate bat roost potential were inspected with an endoscope. All splits and cavities were inspected. No evidence of bats was identified. An emergence survey was carried out on 24/09/20, sunset 19.10, survey start 18.55, survey end 20.40, with two surveyors positioned to view the cavities in the trees. No bat emerged from any location. Soprano and Common pipistrelle bat passes were recorded intermittently throughout the survey.

6. ASSESSMENT

6.1 Constraints on survey information

The survey data is accurate at the time of survey. Trees are dynamic, living organisms, in the event sufficient new evidence is found to upgrade the tree categories the trees should be re-surveyed (BS 8596, 2015, p.18).

6.2 Discussion

It is a ground survey the trees were surveyed from ground level externally. The tree survey demonstrates that 61 trees have negligible or low bat roost potential, therefore no further surveys are required of these trees (Collins, 2016, p.52). 5 trees have moderate bat roost potential, and further surveys are required of these trees (Collins, 2016, p.52). Further inspection with an endoscope and an emergence survey were carried out. No bat roosts were identified during the surveys therefore, no further surveys are required at this time.

6.3 Potential impacts of development

It is not foreseen that the proposed work at the site will have any detrimental short, medium, or longterm impact to the bat population in the surroundings of site as no bat roosts were identified. The main foraging and commuting areas identified during the survey will remain intact. However, it cannot be guaranteed that a bat will not be found once work commences and any contractors on site should be aware of the potential of bats during works, and what to do in the event a bat is discovered.

7. RECOMMENDATIONS and MITIGATION

- 1. No further surveys are recommended at this time for the trees unless sufficient new evidence is found to upgrade the tree category (BS 8596, 2015, p.18).
- 2. Bat roosts in trees can be difficult to find and there may be occasions when they are discovered after work has commenced, even though the correct pre-start roost assessment procedure has been followed. In the event, that bats or bat roosts are discovered during tree work operations, work should cease immediately or as soon as it is safe to do so, with the least possible further disturbance to the tree. NatureScot, formally Scottish Natural Heritage, and a licensed bat worker should be contacted as soon as possible, and the tree work should not recommence without the approval of the bat worker and the acquisition of any licence that might on their advice be required.
- 3. In the event the work results in live bats being discovered loose on the ground they should be placed in a well-ventilated dark container or box pending arrival of the bat worker, and fresh water should be provided in a shallow container such as a jam jar lid. Bats should never be handled with bare hands, and clean gloves should be worn while moving them.

8. REFERENCES

British Standard (2015) "BS 8596-2015 Surveying for bats in trees and woodland – guide" [Online]. Further information available at https://www.trees.org.uk/News-Blog/News/BS8596-Surveying-for-Bats-in-trees-and-woodland-%E2%80%93 (accessed 26th October 2020)

Collins, J (2016) "Bat Conservation Trust, Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd Edition" [Online]. Available at

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9. APPENDICES

Appendix 1 Location Plan Appendix 2 Existing Site Plan

Appendix 1 Location Plan



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Appendix 2 Existing Site Plan

