

**Proposed Watchtower Path at Trossachs Pier, Loch Katrine
Extended Phase 1 Habitat Survey and
Protected Species Assessment**

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EXECUTIVE SUMMARY

Tay Ecology was commissioned to undertake a protected species survey and ecological appraisal for the proposed Watchtower path at Loch Katrine Pier. The site was surveyed by a visual ground survey to assess the ecological impact of the proposed development; if there are protected species using the site; and the potential risk to the present habitat/wildlife from the proposed development. Field surveys included those for bats, badgers, otters, pine martens, red squirrels, and Schedule 1 birds. The presence/absence of any other protected species of flora and fauna was assessed. The survey area included the proposed development site and up to 500m in the surrounding area.

The existing data search shows a range of protected species recorded within a 5km radius. Therefore, the site and surrounding area have potential to be of ecological significance. The proposed path is a linear feature climbing through mixed woodland habitats dominated by birch which forms part of the SSSI. The wider surrounding area will not be directly impacted by the proposed work and the wider landscape will not be changed. There is a negligible to low potential that a majority of trees on the site contain potential bat roosting features therefore the impact of the development on any bat potentially roosting in the trees is expected to be low. The commuting and foraging habitats for bats will remain intact within the woodland and wider area.

There was no evidence of red squirrel activity within the proposed site, with red squirrel activity evident in the wider area. It is not expected that the proposed works will have an adverse impact on red squirrels. The wider surrounding area remains favourable for red squirrels. Pine marten scats were recorded in the wider area, pine martens are tolerant of most forms of human disturbance, the proposed works will not have a long-lasting adverse impact on any pine marten potentially moving to within 100m of the site. No signs of badger or other protected species were recorded during the surveys.

There is a low risk that the proposed development site is home to Schedule 1 birds, there were no signs of any Schedule 1 bird or other vulnerable bird species using the area. The potential impact on any breeding bird is expected to be low provided that any vegetation clearance or tree removal takes place outside of the breeding bird season with checks carried out for breeding birds for any work scheduled during the breeding bird season. No signs of any other protected species of flora or fauna was recorded during the survey. In conclusion the survey demonstrates that the proposed development at the site will have a low impact on any wildlife within the site and surrounding area.

1.0 INTRODUCTION

1.1 Brief from Client

Tay Ecology was commissioned to undertake a habitat and protected species survey of the proposed watchtower path at Trossachs Pier.

1.2 Site location

The 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*

1.3 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 site was surveyed by a visual ground survey to assess the ecological impact of the proposed development; if there are protected species using the site; and the potential risk to the present habitat/wildlife from the proposed development. Field surveys were carried out to assess for the presence of otters; potential of tree bat roosts; presence/absence of red squirrels and their dreys; pine martens and their dens; and badgers and their setts. The presence/absence of specially protected, sensitive, or very, rare, species of birds was assessed. The presence/absence of any other protected species of flora and fauna was surveyed for and habitat quality assessed. The survey area included the proposed development site and up to 500m in the surrounding area.

2.2 Methods

2.2.1 Existing Data Sources

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 Site Link (<https://sitelink.nature.scot/home>).

Other websites searched include Bat Conservation Trust (<http://www.bats.org.uk/>); Scottish Squirrel Survey (<http://www.scottishsquirrelsurvey.co.uk/>); and The British Trust for Ornithology (<http://www.bto.org/>). 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 clearly cannot be taken to imply that the species in question is absent.

2.2.2 Survey methodology

A site visit was carried out after receiving a project brief from Murray Watt, Partner, MW Consultants. A walk over survey was carried out and an overall habitat assessment was made.

2.2.2.1 The main habitats present were surveyed according to the methodology of the Joint Nature Conservation Committee's 'Phase 1 Habitat Survey' (JNCC, 2010). Classification was given to each area according to JNCC (2010). Ground vegetation was then surveyed for the presence of any other rare or protected species by walk-over surveys.

2.2.2.2 An otter survey was carried out following the standard otter survey methodology as set out in the 'New Rivers and Wildlife Handbook' (Holmes, Ward and Jose, 2001) and NatureScot (2020a) 'Protected species advice for developers: otters'. The survey was based on the interpretation of any field signs (spraints, footprints, tracks, slides, couches and holts or potential holts) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.3 Bat roost potential was assessed for trees within the proposed development site using methodology to identify the possible presence of bats, and potential for bat roosts from Collins, J (2016) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' Bat Conservation Trust (3rd edition), Cowan, H (2004) 'Looking out for bats. They could be anywhere!' and NatureScot (2020b) 'Protected species advice for developers: bats'.

2.2.2.4 One emergence (dusk) and bat activity survey were carried out following the format identified in Collins, J (2016) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' Bat Conservation Trust (3rd edition). Equipment included an Anabat Walkabout, Anabat Express passive bat detectors and recorders, and a hand-held BatBox Duet detector. Data was analysed using analook software.

2.2.2.5 The potential presence of red squirrels and red squirrel dreys was surveyed using the Forestry Commission Scotland (FCS, 2006a) 'FCS Guidance Note 33: Forest operations and red squirrels', NatureScot (2020c) 'Protected species advice for developers: red squirrel's, and UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation' (The Mammal Society, 2012, pp. 13-16). The survey was based on the interpretation of any field signs (feeding signs and dreys) and assessment of suitable habitat.

2.2.2.6 Evidence of pine marten presence was surveyed for using UK BAP Mammals: 'Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation' (The Mammal Society 2012, pp.71-76) and 'Protected Species Advice for Developers: Pine Marten' (NatureScot, 2020d). The survey was based on the interpretation of field signs (scats, footprints, and dens or potential dens) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.7 Evidence of badgers was surveyed for using information from Scottish Badgers (2020), 'Badger surveying' and 'Protected species advice for developers: badgers' (NatureScot, 2020e). The survey was based on the interpretation of field signs (footprints, foraging holes, latrines, and setts or potential setts) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.8 A beaver survey was carried out following NatureScot (2020f) 'Protected species: beavers.' The survey was based on the interpretation of any field signs (footprints, tracks, feeding signs) and assessment of suitable habitat rather than direct observation of the animals themselves.

2.2.2.9 The site was surveyed for the presence of any other rare or protected species, guidelines from FCS (2007) FCS Guidance Note 34: Forest operations and European protected species in Scottish forests.

2.2.2.10 The presence of potential Schedule 1 birds was adapted from BTO, (2020), ‘Methodology and survey design for bird surveys’ and NatureScot (2020g) ‘Protected species: birds.’

2.2.3 Survey area

The survey area includes the proposed development location and up to 500m in the surrounding area.

2.2.4 Timings, types, and weather conditions of field Surveys

The site was surveyed by walk-over and protected species surveys carried out in September and October 2020 by Emma O’Shea. The main habitats present were surveyed according to the methodology of the Joint Nature Conservation Committee’s Phase 1 Habitat Survey (JNCC 1993). Signs of the presence of protected species were sought and habitats were assessed for their potential to host protected species.

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

29/09/2020 Habitat survey, tree roost assessment, protected species surveys - temperature 11 degrees Celsius; wind speed 5mph; cloud cover 100%; rain; good visibility.

10/10/2020 Protected species surveys, tree roost assessment - temperature 7 degrees Celsius; wind speed 10mph; cloud cover 50%; no precipitation; good visibility.

2.2.5 Limitations

Survey data is accurate on the date that the surveys took place. It was a ground survey, with no tree climbing element, the surveyor was able to see to the tops of the trees and full access to the survey area was available.

2.2.6 Personnel

Emma O’Shea, Ecological Consultant, Tay Ecology. 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 species surveys and species licensing. Emma is a licensed bat surveyor, has 11 years of experience surveying breeding birds, is a qualified tree inspector with a background in tree regeneration monitoring and habitat surveys. She has a Postgraduate Diploma in Environmental Management from the Open University and is a member of the Institute of Environmental Assessment and Management.

3.0 LEGISLATION AND POLICY GUIDANCE

3.1 Otter

Otters are legally protected in Scotland by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) - "the Habitats Regulations". Under these Regulations, otters are classed as European Protected Species and are given the highest level of species protection. It is illegal to: deliberately or recklessly kill, injure or take (capture) an otter; deliberately or recklessly disturb or harass an otter; damage, destroy or obstruct access to a breeding site or resting place of an otter (i.e. an otter shelter). Otter shelters are legally protected whether, or not an otter is present. As well as the specific protection for otters and their resting places, the Government has designated a suite of Special Areas of Conservation (SACs), 44 of which have been selected in Scotland for their otter interest.

3.2 Bats

Bats and their roosts are legally protected, whether bats are occupying the roost or not. It is illegal to disturb a bat(s) in their roosts; damage or destroy a bat roosting place, even if there are no bats present at the time; and obstruct access to a bat roost. It is illegal to capture, injure or kill a bat or possess, advertise, sell, or exchange a bat dead or alive.

3.3 Red Squirrel

The red squirrel is protected under schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). Under this legislation it is illegal to intentionally kill, injure or take or damage, destroy or obstruct access to any structure or place used for shelter or protection, or to disturb any animal while it is in a drey. Forestry operations are not prevented by this legislation but are expected to cause minimal disturbance and minimize loss of habitat.

3.4 Pine Marten

Pine martens are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). It is an offence to intentionally or recklessly kill, injure or take a wild pine marten; damage, destroy or obstruct access to any structure or place which such an animal uses for shelter or protection (den); and to disturb such an animal when it is occupying a place for that purpose.

3.5 Badger

Protection of Badgers Act 1992 - offences under the Act include: taking, injuring, or killing badgers; cruelty to badgers; interference with badger setts; selling and possession of live badgers and marking and ringing. Exceptions and licences can apply.

3.6 Beaver

Beavers are legally protected in Scotland by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) - "the Habitats Regulations". Under these Regulations, beavers are classed as European Protected Species and are given the highest level of species protection. It is illegal to: deliberately or recklessly kill, injure or take (capture) a beaver; deliberately or recklessly disturb or harass a beaver; damage, destroy or obstruct access to a breeding site or resting place of a beaver (i.e. a beaver lodge). Beaver lodges are legally protected whether, or not a beaver is present.

3.7 Breeding birds

The main legislation Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004 make it an offence to intentionally or recklessly kill, injure or take any wild bird, or take, damage, destroy, obstruct or interfere with any wild birds' nest, whilst being built or in use, or their eggs or young.

Appendix 3 Wildlife legislation

4.0 RESULTS

4.1 Existing 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).

Trossachs Woods SAC is designated a Western acidic oak woodland that is old sessile oak (*Quercus petraea*) woods with holly (*Ilex*) and hard fern (*Blechnum*).

Ben A'an and Brenachoile Woods SSSI is designated as part of Trossachs Woods SAC. The woods are semi-natural ancient woodlands of sessile oak (*Quercus petraea*), with a ground flora dominated by grasses, blaeberry, and ling. The lichen is intermediate in character between the wet oceanic woods of western Scotland, and the more continental woods of the east. Local nutrient enrichment gives rise to ash with dog's mercury (*Mercurialis perennis*) and broad buckler-fern (*Dryopteris dilatata*), with a variety of herbaceous species including ramsons (*Allium ursinum*) and the locally rare wood sedge (*Carex sylvatica*). Where groundwater flushing occurs, alder dominates with ash and hazel, over a ground flora of species such as sharp-flowered rush (*Juncus acutiflorus*), marsh violet (*Viola palustris*) and yellow pimpernel (*Lysimachia nemorum*).

National Biodiversity Network confirmed presence of the following protected species within 1km radius: Beaver (*Castor fiber*) and Red squirrel (*Sciurus vulgaris*).

Red squirrels have been recorded at NN 494075, NN 491077, NN 50270715 from 2019-2015. The 2017 Tayside Beaver Survey recorded beavers in 27 locations in grid squares NN 4906 and NN 5006

National Biodiversity Network confirmed presence of the following protected species within 2km radius: Beaver (*Castor fiber*); Otter (*Lutra lutra*); Soprano pipistrelle (*Pipistrellus pygmaeus*); and Red squirrel (*Sciurus vulgaris*).

National Biodiversity Network confirmed presence of the following protected species within 5km radius: Water Vole (*Arvicola amphibius*); Beaver (*Castor fiber*); Otter (*Lutra lutra*); Pine Marten (*Martes martes*); Daubenton's bat (*Myotis daubentonii*); Natterer's bat (*Myotis nattereri*); Soprano pipistrelle (*Pipistrellus pygmaeus*); Brown long-eared bat (*Plecotus auritus*); and Red Squirrel (*Sciurus vulgaris*).

National Biodiversity Network confirmed presence of the following Schedule 1 birds within 1km radius: Crossbill (*Loxia curvirostra*).

National Biodiversity Network confirmed presence of the following Schedule 1 birds within 2km radius: Merlin (*Falco columbarius*); Great Northern diver (*Gavia immer*); Crossbill (*Loxia curvirostra*); and Barn Owl (*Tyto alba*).

National Biodiversity Network confirmed presence of the following Schedule 1 birds within 5km radius: Kingfisher (*Alecco attheis*); Merlin (*Falco columbarius*); Brambling (*Fringilla montifringilla*); Black throated diver (*Gavia arctica*); Great Northern diver (*Gavia immer*); Crossbill (*Loxia curvirostra*); Snow bunting (*Plectrophenax nivalis*); Capercaillie (*Tetrao urogallus*); Redwing (*Turdus iliacus*); Fieldfare (*Turdus pilaris*); and Barn Owl (*Tyto alba*).

4.2 Habitat field surveys

4.2.1 Habitat description

4.2.1.1 The proposed site is in the Loch Lomond and Trossachs National Park (LLTNP) and The Great Trossachs Forest National Nature Reserve (NNR). The proposed footpath is within the Ben A'an and Brenachoile SSS1 and the Trossachs Wood SAC.

4.2.2.2 Tree species on or adjacent to the proposed route include Alder (*Alnus glutinosa*); Hazel (*Corylus avellana*); Silver birch (*Betula pendula*); Downy birch (*Betula pubescens*); Ash (*Fraxinus excelsior*); Sessile oak (*Quercus petraea*); Rowan (*Sorbus acuparia*).

Phase 1 Habitat Classification for Proposed development site is A1.1.1 Deciduous semi-natural woodland. The National Vegetation Classification survey report describes the habitat with three classifications W4 a predominantly wet birchwood and sphagnum layer; W11 an open birch oak wood with rowan, ferns and herbs; and W18 Scot's pine forest with frequent birch association and a dense heathery understorey.

Photographs of proposed development site

Path start



Lower path



Upper path



Summit view



4.2.2 Description of habitats of potential value to wildlife

The proposed development area has the potential to be of high value to wildlife.

4.2.3 Tree species recorded

Tree species recorded include: Alder (*Alnus glutinosa*); Silver Birch (*Betula pendula*); Downy birch (*Betula pubescens*); Hazel (*Corylus avellana*); Norway spruce (*Picea abies*); Scot's pine (*Pinus sylvestris*); Sessile oak (*Quercus petraea*); and Rowan (*Sorbus acuparia*).

4.3 Otter Survey

Otter activity and otter signs were surveyed for on each survey. Surveys took place in the 2 hours before dusk or 2 hours after dawn to optimise the chances of seeing otters.

Species recorded No otters recorded in the proposed development site, or up to 500m in the surrounding area.

Signs recorded No otter signs ie. spraints, footprints, tracks, slides, couches and holts or potential holts recorded in the proposed development site.

4.4 Bat Survey

4.4.1 Preliminary Tree Bat Roost Assessment

A tree preliminary bat roost assessment was carried out to assess for the likelihood of the trees at the site to have bat roosts. The assessment indicated that 61 trees have negligible to low bat roost potential. These trees include alder, silver birch, downy birch, sessile oak, and rowan. Five trees 9717, 9719, 9720, and 2 trees NW of 9270 have moderate bat roost potential. This is detailed in *Appendix 4 Preliminary Ground Level Bat Roost Assessment for Trees* and summarised in *Appendix 5*.

Low bat roost potential is 'a tree of sufficient size and age to contain potential roosting features (PRFs) but with none seen from the ground or features with only very, limited roosting potential' (Collins, 2016, p.35). No further surveys are required for trees with negligible or low bat roost potential (Collins, 2016, p.52). 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 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.

4.4.2 Bat Activity Survey

An emergence (dusk) and activity survey were carried out on 24/09/20 starting 15 minutes before sunset and continuing for 2 hours after sunset (Collins, 2016, p.51). Bat passes were recorded intermittently along the proposed path. Common pipistrelles (*Pipistrellus pipistrellus*) and Soprano pipistrelles (*Pipistrellus pygmaeus*) were recorded flying overhead. A maximum of 4 Common and 4 Soprano pipistrelles were recorded along the proposed route. Bat activity was highest at the summit of the hill where the greatest number of bat passes were recorded.

4.5 Red Squirrel Survey

Red squirrel activity and red squirrel signs were surveyed for on each survey. Surveys took place in the 2 hours before dusk or the 2 hours after dawn to optimise the chances of seeing red squirrels. A tree assessment for the potential of trees around the site to support red squirrel dreys is summarised in *Appendix 5 Red squirrel, pine marten, breeding bird and bat tree assessment summary*.

Species recorded No red squirrels were recorded within the proposed development site, or up to 500m in the surrounding area.

Signs recorded No red squirrel dreys or feeding signs were recorded within the proposed development site, or up to 500m in the surrounding area.

4.6 Pine marten survey

Pine marten activity and pine marten signs were surveyed for on each survey. Surveys continued for up to 2 hours after sunset or commenced 2 hours before sunrise to optimise the chances of seeing pine martens. A tree assessment for the potential of trees around the site to support pine martens is summarised in *Appendix 5 Red squirrel, pine marten, breeding bird and bat tree assessment summary*.

Species recorded No pine martens recorded within the proposed development site, or up to 500m in the surrounding area.

Signs recorded No pine marten dens or scats recorded within the proposed development site, with pine marten scats recorded in woodland to the south within 200m in the surrounding area.

4.7 Badger survey

Badger activity and badger signs were surveyed for on each survey. Surveys continued for up to 2 hours after sunset or commenced 2 hours before sunrise to optimise the chances of seeing badgers.

Species recorded No badgers recorded within the proposed development site, or up to 500m in the surrounding area.

Signs recorded No badger setts or latrines recorded within the proposed development site, or up to 500m in the surrounding area.

4.8 Beaver Survey

Beaver activity and beaver signs were surveyed for on each survey. Surveys took place in the 2 hours before dusk or 2 hours after dawn to optimise the chances of seeing beavers.

Species recorded No beavers recorded in the proposed development site, or up to 500m in the surrounding area.

Signs recorded No beaver signs recorded within the proposed development site, or up to 500m in the surrounding area.

4.9 Other protected species survey

Other species activity and signs were surveyed for on each of the survey. Species included amphibians, reptiles, and water voles.

Species recorded No other protected species were recorded.

Signs recorded No other protected species signs were recorded.

4.10 Schedule 1 and Bird Recording Survey

Two Schedule 1 and bird recording surveys were carried out on 24/09/20, 10/10/20. No specially protected, sensitive, or very, rare, species of bird was recorded in the proposed development site. No other vulnerable breeding bird species (ie. those where disturbance issues can occur) were recorded in the proposed development site. Bird species which were identified either by visual sighting or by bird call within the proposed development site and up to 500m in the surrounding area include:

Species	Proposed site	500m of proposed site
<i>Buteo buteo</i> , Buzzard	No	Yes
<i>Carduelis carduelis</i> , Goldfinch	Yes	Yes
<i>Certhia familiaris</i> , Treecreeper	Yes	Yes
<i>Columba palumbus</i> , Woodpigeon	Yes	Yes
<i>Corvus monedula</i> , Jackdaw	No	Yes
<i>Cyanistes caeruleus</i> , Blue Tit	Yes	Yes
<i>Erithacus rubecula</i> , Robin	Yes	Yes
<i>Fringilla coelebs</i> , Chaffinch	Yes	Yes
<i>Parus major</i> , Great Tit	Yes	Yes
<i>Passer domesticus</i> , House sparrow	No	Yes
<i>Parus ater</i> , Coal tit	Yes	Yes
<i>Strix aluco</i> , Tawny Owl	No	Yes
<i>Troglodytes troglodytes</i> , Wren	Yes	Yes
<i>Turdus philomelos</i> , Song thrush	No	Yes
<i>Turdus merula</i> , Blackbird	Yes	Yes

A tree assessment for the potential of trees around the site to support breeding birds is summarised in *Appendix 5 Red squirrel, pine marten, breeding bird and bat tree assessment summary*.

5.0 ASSESSMENT

5.1 Limitations

Survey data is accurate on the date that the surveys took place. It was a ground survey, with no tree climbing element, the surveyor was able to see to the tops of the trees and full access to the survey area was available.

5.2 Discussion

Tay Ecology was commissioned to undertake a habitat, protected species survey and an ecological appraisal for the proposed Watchtower path at Trossachs Pier. The site was surveyed by a visual ground survey to assess the ecological impact of the proposed development; if there are protected species using the site; and the potential risk to the present habitat/wildlife from the proposed development. Field surveys were carried out for bat roosts; red squirrels; pine martens; otters; badgers; and beavers. The presence/absence of specially protected, sensitive, or very, rare species of birds was assessed together with the presence/absence of any other protected species of flora and fauna. The survey area included the proposed development site and up to 500m in the surrounding area.

The existing data search shows that the site is within the Loch Lomond and Trossachs National Park, the Great Trossachs Forest National Nature Reserve, and falls within the Ben A'an and Brenachoile SSSI and Trossachs Woods SAC, with a range of protected species recorded within a 5km radius. The site and surrounding area therefore have the potential to be of ecological significance. The proposed path route minimises tree felling. There will be a small linear loss of vegetated ground due to the construction of the footpath. The wider surrounding area will not be directly impacted by the proposed work and the wider landscape will not be changed.

5.2.1 Otter surveys

The shore of Loch Katrine has potential for otter activity. There were no signs ie. spraints, footprints, tracks, slides, couches and holts or potential holts and no sightings of otters recorded in the proposed development site or the surrounding area surveyed. The location of the proposed development does not impact the loch habitat and therefore will have a low impact on any otter activity in the area. Therefore, there is a minimal risk to otters from the proposed development.

5.2.2 Bat surveys

There is a negligible to low potential that bat tree roosts may be present along the proposed path in 61 trees. Five trees with moderate bat roost potential were inspected and no bat roosts were identified. Therefore, the impact of the development on any potential bat roost is low. The activity surveys demonstrated Pipistrelle activity in the area, however, overall bat numbers were low. Potential disturbance to bat activity is assessed as low as there are good quality feeding habitats and the habitat surrounding the site will be retained. The impact on the bat population is therefore assessed as low as there will be a low impact on the commuting and foraging habitat as the surrounding habitat will remain intact and bats will continue to be able to cross the area.

5.2.3 Red squirrel surveys

There was no evidence of red squirrel activity within the proposed development site. Red squirrels have been recorded within the wider locality and the woodland is inter-connected across the SAC and SSSI. It is not expected that the path construction will have an adverse impact on red squirrel mortality or breeding at a scale which would affect the viability of the population. The project will not fragment the existing red squirrel population and it will not lead to an increased risk of local extinction or increased mortality, as a result of forced dispersal over unsuitable habitat or areas with no or limited cover. The surrounding

woodland remains favourable for red squirrels (Mammal Society, 2012, pp. 16-19). A dependable long-term food supply from a mixture of deciduous and coniferous trees will remain in the wider area.

5.2.4 Pine marten surveys

There was evidence of pine martens (scats) recorded during the survey in the wider area around the path route. Pine martens are tolerant of most forms of human disturbance (Mammal Society 2012, p.76-77), and the path will not have a long-lasting adverse impact on any pine marten potentially moving closer to the site.

5.2.5 Beaver surveys

There were no signs ie. footprints, feeding signs, lodges or dams and no sightings of beavers recorded in the proposed development site or the wider area surveyed. The location of the proposed path will not directly impact the water habitat and therefore will have a low impact on any beaver activity in the area. Therefore, there is a minimal risk to beavers from the proposed development.

5.2.6 Badger, Water Vole, and other protected species surveys

No other signs of protected mammal species including badger and water vole was recorded. Other protected species surveyed for include amphibians and reptiles.

5.2.7 Schedule 1 and bird activity surveys

There is a low potential that the proposed development site is home to Schedule 1 birds. There were no signs of any Schedule 1 bird or other vulnerable bird species in the area. The bird activity survey demonstrated that 10 species of birds were recorded within the proposed site and 15 species in the surrounding area. Any work involving tree felling and ground vegetation clearance should be aware of the potential for common breeding birds between April and July and steps taken to minimise potential disturbance.

5.3 Conclusion

The survey demonstrates that the proposed path construction is unlikely to have a detrimental impact on any wildlife already using the site and surrounding area. Full access to all areas of the site and surrounding area was available and weather conditions were favourable at the time of surveying. The survey has established that there is a low potential that any otter, bat, red squirrel, pine marten, badger, beaver or other protected species in the area will be detrimentally impacted by the proposed development; and there is a negligible to low potential that a majority of trees at the site contain bat roosts, and no bat roosts identified in moderate potential trees.

There is low likelihood to the presence/disturbance of rare, protected species of birds within the area and high likelihood of these birds being in the wider surrounding area. There is a high likelihood of common breeding birds being within the development area. The survey demonstrates that the proposed development at the site will have a low impact overall on any wildlife within the site and surrounding area. The proposed path route minimises tree felling. However, there will be a small linear loss of vegetated ground due to the construction of the footpath, although the surrounding area will not be directly impacted by the proposed work and the wider landscape will not be changed.

6.0 RECOMMENDATIONS and MITIGATION

To minimize disturbance or damage to protected species prior to work starting on site it is recommended that:

1. Breeding birds

- Any tree felling or ground vegetation work should be minimised.
- Where trees are to be felled and/or ground vegetation cleared it is recommended that this is carried out prior to the start or after the end of the bird breeding season (September to end of February). Any tree or ground works during the bird breeding season (March to August inclusive) will require a pre-operational survey by a suitably qualified ecologist. If no nests are present, trees should be felled as soon as possible following the survey.
- There is no NatureScot licence available to fell trees or clear ground containing active bird nests or ground nesting birds, felling must be delayed until chicks have fledged.

2. Red Squirrel

- Felling of trees on site should be minimised.
- A pre-construction survey to identify active dreys should be carried out. If no dreys are present, any tree work should be carried out as soon as possible following the survey. Where any dreys are recorded, NatureScot species licensing should be contacted and if appropriate a licence to fell the drey tree obtained before felling commences or a buffer zone established to protect an active drey.
- Workers to be fully briefed regarding the possibility of red squirrels on site, the legal status of the animal and their dreys. Any sightings of red squirrel or discovery of a drey should be reported immediately to the Site Manager and ECoW.

3. Bats

- Felling of trees on site should be minimised.
- Where mature trees are to be felled, a pre-construction survey to identify any changes to 'potential roost features' undertaken. If no potential roost features are present, no further action is required. The presence of bat roosts (active or otherwise) in trees should be confirmed with a bat licence holder present. If a bat roost is confirmed, NatureScot species licensing should be contacted to discuss licensing requirements.
- Workers to be fully briefed regarding the possibility of bats in mature trees on site, their legal status and that of their roosts. Discovery of a suspected bat roost should be reported immediately to the Site Manager and ECoW.

4. Pine Marten

- Felling of trees on site minimised.
- Pre-construction checks of all works for pine martens. Where any dens or resting places are recorded, NatureScot species licensing should be contacted and if appropriate a licence obtained before work recommences.
- Workers to be fully briefed regarding the possibility of pine marten on site, the legal status of the animal, their dens, and resting places. Any sightings of pine marten or discovery of a den or resting place should be reported immediately to the Site Manager and ECoW.

5. Badger

- Pre-construction checks of all works for badgers. Where any setts are recorded, NatureScot species licensing should be contacted and if appropriate a licence obtained before work commences.
- Workers to be fully briefed regarding the possibility of badger on site, the legal status of the animal and their setts. Any sightings of badger or discovery of a sett on site should be reported immediately to the Site Manager and ECoW.

6. Amphibians and Reptiles

- Checks for reptiles should be made prior to operations.
- Where amphibians or reptiles are found, they should be carefully moved to a similar habitat in a safe location out-with the development footprint.
- Where practical, any residue left on site from felled broadleaved trees should be heaped into piles within the remaining woodland to create a habitat resource for wildlife.

7.0 REFERENCES

Andrews, H & Gardener, M., 2016, '*Bat Tree Habitat Key – Database Report 2016*'. AEcol, Bridgwater [Online]. Available at <http://battreehabitatkey.co.uk/> (accessed 26th October 2020)

British Trust for Ornithology, (BTO), 2020, '*Methodology and survey design for bird surveys*' [Online]. Available at <https://www.bto.org/volunteer-surveys/bbs/research-conservation/methodology> (accessed 28th October 2020)

Collins, J., 2016, '*Bat Conservation Trust, Bat Surveys for Professional Ecologists: Good Practice Guidelines*', 3rd Edition

Forestry Commission Scotland, (FCS), 2006a, '*FCS Guidance Note 33: Forest operations and red squirrels: November 2006. Forest operations and red squirrels in Scottish forests - the law and good practice*' [Online]. Available at <https://scotland.forestry.gov.uk/images/corporate/pdf/Guidancenote33Redsquirrel.pdf> (accessed 28th October 2020)

Forestry Commission Scotland, (FCS), 2007, '*FCS Guidance Note 34: Forest operations and European protected species in Scottish forests - - implications of legal changes from February 2007*' [Online]. Available at <https://scotland.forestry.gov.uk/images/corporate/pdf/Guidancenote34protectedspecies2.pdf> (accessed 28th October 2020)

Holmes, Ward and Jose, (2001), '*New Rivers and Wildlife Handbook*', NRA/RSPB/RSNC Joint Nature Conservation Committee, (JNCC) (2010) '*Handbook for Phase 1 habitat survey. A technique for environmental audit*' [Online]. Available at http://jncc.defra.gov.uk/PDF/pub10_handbookforphase1habitatsurvey.pdf (accessed 28th October 2020)

Mammal Society, 2012, '*UK BAP Mammals Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation*', edited by Creswell W.J, Birks J. D.S, Dean M, Pacheco M, Trehwella W.J, Wells D and Wray S

NatureScot, 2020a, '*Protected Species Advice for Developers: Otter*' [Online]. Available at <https://www.nature.scot/sites/default/files/2020-06/Species%20Planning%20Advice%20-%20otter.pdf> (accessed 28th October 2020)

NatureScot, 2020b), '*Protected Species: Bats*' [Online]. Available at <https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-bats> (accessed 28th October 2020)

NatureScot, 2020c, '*Protected Species Advice for Developers: Red Squirrels*' [Online]. Available at https://www.nature.scot/sites/default/files/2020-06/Species%20Planning%20Advice%20-%20red%20squirrel_0.pdf (accessed 28th October 2020)

NatureScot, 2020d, '*Protected Species Advice for Developers: Pine Martens*' [Online]. Available at <https://www.nature.scot/professional-advice/planning-and-development/planning-and-development-advice/planning-and-development-standing-advice-and-guidance-documents> (accessed 28th October 2020)

NatureScot, 2020e, '*Protected Species Advice for Developers: Legal Protection for Badgers*' [Online]. Available at <https://www.nature.scot/species-planning-advice-badger> (accessed 28th October 2020)

NatureSoct, 2020f, '*Protected Species: Beavers*' [Online]. Available at <https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-beavers> (accessed 28th October 2020)

NatureScot, 2020g, '*Protected Species: Birds*' [Online]. Available at <https://www.nature.scot/professional-advice/safeguarding-protected-areas-and-species/protected-species/protected-species-z-guide/protected-species-birds> (accessed 28th October 2020)

Scottish Badgers, 2020, '*Badger Surveying*' [Online]. Available at <https://scottishbadgers.org.uk/badger-surveying.asp> (accessed 28th October 2020)

Scottish Squirrel Survey, 2020, '*Scottish Squirrel Survey*' [Online]. Available at <http://www.scottishsquirrelsurvey.co.uk/> (accessed 28th October 2020)

8.0 APPENDICES

Appendix 1 Location Plan – p.18

Appendix 2 Existing Site Plan – p.19

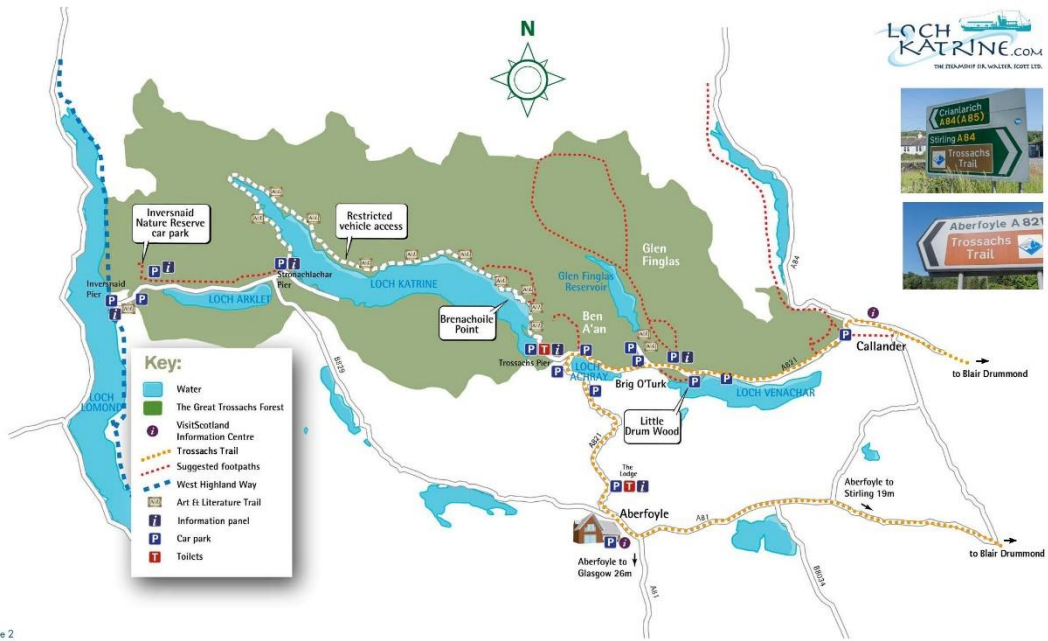
Appendix 3 Wildlife Legislation – p.20

Appendix 4 Preliminary Ground Level Bat

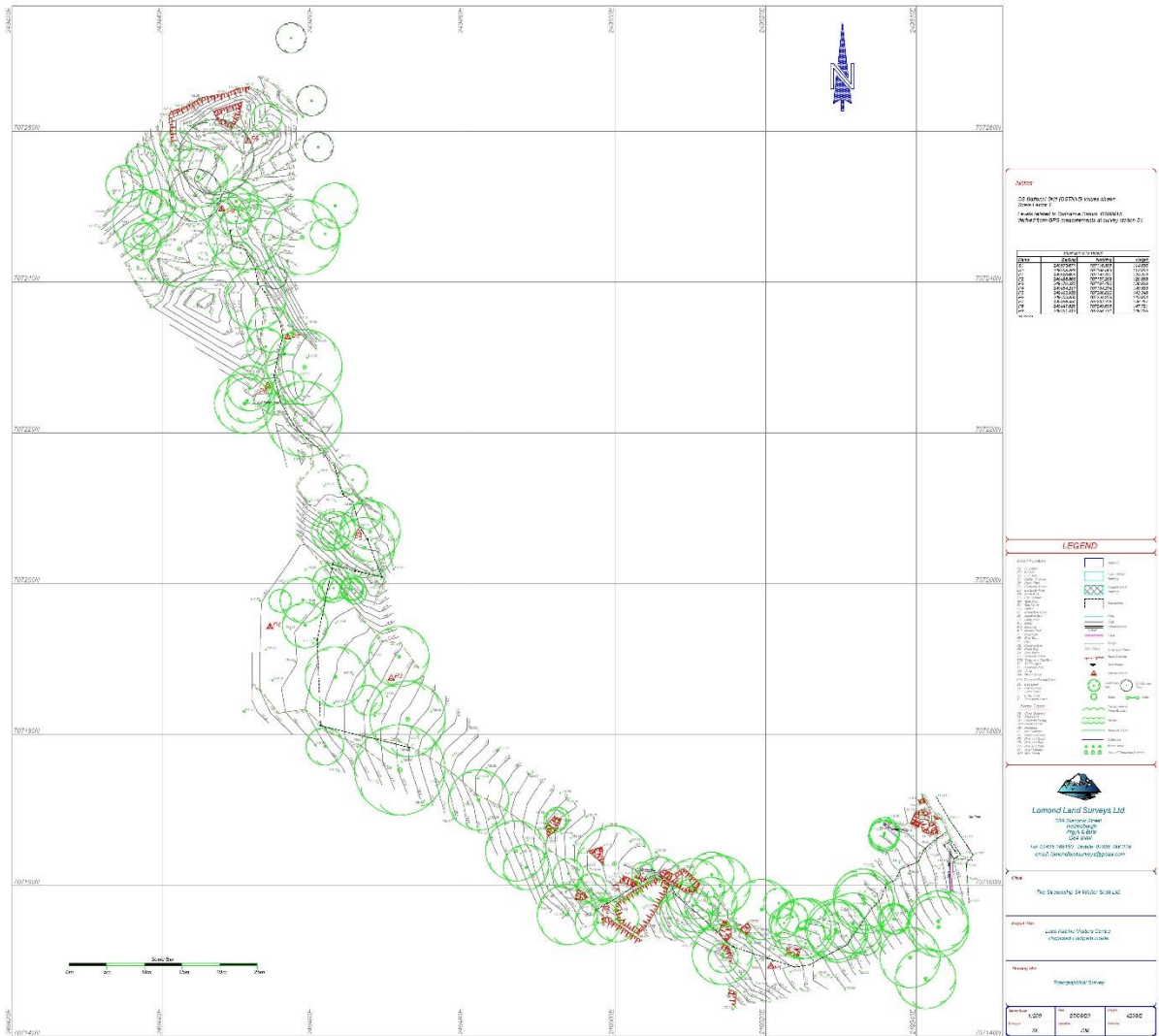
Roost Assessment for Trees – attached pdf

Appendix 1 Location Plan

The Great Trossachs Forest National Nature Reserve and The Trossachs Trail



Appendix 2 Existing Site Plan



Appendix 3 Wildlife Legislation

1.0 Wildlife and Countryside Act, 1981, as amended (WCA)

The WCA sets out the protection offered to various species of plants, birds and animals in England and Wales. Bird species listed in Schedule 1, animal species listed in Schedule 5 and plant species listed in Schedule 8 of the WCA are protected. Under section 14(2) of the WCA it is an offence to “plant or otherwise cause to grow in the wild” any plant listed in Schedule 9, Part II of the Act. Japanese knotweed (*Fallopia japonica*) is a Schedule 9, Part III species. The WCA has since been strengthened and updated by subsequent UK and Scottish legislation (see below).

1.1 The Conservation (Natural Habitats &c.) Regulations 1994, as amended (Habitat Regulations)

The provisions of the Habitats Directive were transposed into UK law by the Habitat Regulations. Schedule 2 of the Habitat Regulations lists the European protected species of animals whilst Schedule 4 lists the European protected species of plants. Under the Habitat Regulations, it is illegal to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4 without a licence granted by the appropriate authority. Licences can only be granted for certain purposes and if a set of conditions have been met.

1.2 Nature Conservation (Scotland) Act 2004

Deals with conserving biodiversity by introducing a duty on all public bodies to further the conservation of biodiversity and requires under Section 2(4) publication of a list of habitats and species for conservation action. Amends the 1981 Wildlife & Countryside Act in respect of protecting Sites of Special Scientific Interest, and similarly strengthens protection of certain birds, animals and plants. Updates the 1992 Protection of Badgers Act.

1.2.1 The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004 Amends 1994/ Habitats Regulations to bring provision for protection of European ‘Natura 2000’ sites into line with the protection regime set out in the Nature Conservation (Scotland) Act 2004 and affords protection to European candidate sites. It gives further protection to European protected species, introducing a new offence of ‘reckless disturbance’ in respect of European sites and species.

The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2007 Significantly strengthened the regulations relating to European Protected Species of animals and enacting the requirement to assess developments plans (structure and local plans) with regard to effects on Natura 2000 (EC Directive) sites.

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Appendix 5 Red squirrel, pine marten, breeding bird and bat roost tree assessment potential summary

Tree No.	Species	Red Squirrel Drey	Pine Marten Den	Breeding Bird	Bat roost potential
9662	Silver birch	Low	Negligible	Moderate	Low
9663	Silver birch	Low	Negligible	Moderate	Low
9664	Silver birch	Low	Negligible	Moderate	Low
9665	Silver birch	Low	Negligible	Moderate	Low
9666	Silver birch	Low	Negligible	Moderate	Low
9667	Silver birch	Low	Negligible	Moderate	Low
9668	Silver birch	Low	Negligible	Moderate	Low
9669	Silver birch	Low	Negligible	Moderate	Low
9670	Silver birch	Low	Negligible	Moderate	Low
9671	Silver birch	Negligible	Negligible	Low	Negligible
9672	Silver birch	Low	Negligible	Moderate	Low
9673	Silver birch	Low	Negligible	Moderate	Low
9674	Silver birch	Low	Negligible	Moderate	Low
9675	Silver birch	Low	Negligible	Moderate	Low
9676	Silver birch	Low	Negligible	Moderate	Low
9677	Silver birch	Low	Negligible	Moderate	Low
9678	Silver birch	Negligible	Negligible	Low	Negligible
9679	Silver birch	Low	Negligible	Moderate	Low
9680	Ash	Negligible	Negligible	Low	Negligible
9681	Common alder	Low	Negligible	Moderate	Low
9682	Silver birch	Low	Negligible	Moderate	Low
9683	Silver birch	Negligible	Negligible	Low	Negligible
9684	Silver birch	Low	Negligible	Moderate	Low
9685	Silver birch	Negligible	Negligible	Low	Negligible
9686	Ash	Low	Negligible	Moderate	Low
9687	Silver birch	Low	Negligible	Moderate	Low
9688	Silver birch	Low	Negligible	Moderate	Low
9689	Silver birch	Low	Negligible	Moderate	Low
9690	Common alder	Low	Negligible	Moderate	Low
9691	Silver birch	Low	Negligible	Moderate	Low
9692	Silver birch	Negligible	Negligible	Low	Negligible
9693	Silver birch	Low	Negligible	Moderate	Low
9694	Silver birch	Low	Negligible	Moderate	Low
9695	Silver birch	Low	Negligible	Moderate	Low
9696	Silver birch	Low	Negligible	Moderate	Low
9697	Silver birch	Low	Negligible	Moderate	Low
9698	Silver birch	Low	Negligible	Moderate	Low
9699	Silver birch	Low	Negligible	Moderate	Low
9700	Silver birch	Low	Negligible	Moderate	Low
9701	Silver birch	Negligible	Negligible	Low	Negligible
9702	Silver birch	Low	Negligible	Moderate	Low
9703	Rowan	Low	Negligible	Moderate	Low
9704	Silver birch	Low	Negligible	Moderate	Low
9705	Silver birch	Low	Negligible	Moderate	Low
9706	Silver birch	Low	Negligible	Moderate	Low
9707	Silver birch	Low	Negligible	Moderate	Low
9708	Silver birch	Low	Negligible	Moderate	Low
9709	Silver birch	Negligible	Negligible	Low	Negligible
9710	Silver birch	Low	Negligible	Moderate	Low
9711	Scot's pine	Negligible	Negligible	Low	Negligible
9712	Silver birch	Negligible	Negligible	Low	Negligible
9713	Silver birch	Low	Negligible	Moderate	Low
9714	Rowan	Negligible	Negligible	Low	Negligible
9715	Silver birch	Low	Negligible	Moderate	Low
9716	Downy birch	Negligible	Negligible	Low	Negligible
9717	Downy birch	Low	Negligible	Moderate	Moderate

9718	Downy birch	Negligible	Negligible	Low	Negligible
9719	Silver birch	Low	Negligible	Moderate	Moderate
9720	Downy birch	Low	Negligible	Moderate	Moderate
9721	Norway spruce	Low	Negligible	Moderate	Low
9722	Silver birch	Low	Negligible	Moderate	Low
9723	Scot's pine	Low	Negligible	Moderate	Low
9724	Silver birch	Negligible	Negligible	Low	Negligible
9725	Silver birch	Low	Negligible	Moderate	Low
NW 9720	Birch spp.	Low	Negligible	Moderate	Moderate
NW 9720	Birch spp.	Low	Negligible	Moderate	Moderate