United Environmental Services Ltd
1 Booths Park,
Chelford Road,
Knutsford,
Cheshire
WA16 8QZ

www.ues.org.uk
enquiries@ues.org.uk
01565 757788

BAT GROUND LEVEL TREE ASSESSMENT

At

The Oaks
Wrexham Industrial Estate
Wrexham
LL13 9RG

NGR: SJ 38806 49238

Prepared for:	Boris Byrne, FI Facilities Management Ltd.
Written by:	Noah Fulton, UES Graduate Ecologist
Approved by:	Tom Kenwright, UES Senior Ecologist

Tom Kenwright

Date:	6th November 2023
Updated:	2nd April 2025
UES reference:	UES03918/20

CONTENTS

EXECUTIVE SUMMARY **3**

1 INTRODUCTION **5**
1.1 Author, surveyors and qualifications 5
1.2 Survey objectives 5
1.3 Proposed development 5
1.4 Structure of the report 6

2 METHODOLOGY **7**
2.1 General 7
2.2 Ground-level tree assessment 7
2.3 Survey limitations 8

3 RESULTS **9**
3.1 Habitat assessment 9
3.2 Ground level tree assessments 9

4 EVALUATION AND RECOMMENDATIONS **17**
4.1 Evaluation of results 17
4.2 Mitigation and compensation measures 17

5 CONCLUSION **19**

6 REFERENCES **20**

APPENDICES **21**
Appendix 1 – Tree plan 21
Appendix 2 – Survey results 22
Appendix 3 – Photographs 23
Appendix 4 – External lighting guidance 24
Appendix 5 – Statutory and planning context 25

EXECUTIVE SUMMARY

This report is written by Noah Fulton BSc, Graduate Ecologist at United Environmental Services Ltd (UES). It provides an initial assessment of the potential impacts on bats as a result of works to trees associated with a proposed development at The Oaks, Wrexham Industrial Estate, Wrexham. At this stage no detailed tree removal plans have been provided to UES.

At the time of the survey, no detailed proposals had been submitted to UES and the potential development area had not been determined. As such, the boundary for the survey included all areas likely to be impacted by the proposed development. All trees within the survey boundary were subject to a ground-level assessment of their potential to support roosting bats between the 19th and 27th April 2023. All potential roosting features (PRFs) which could be accessed from ground level were closely inspected for signs of evidence associated with bat activity, as detailed in Bat Conservation Trust (BCT) guidance (Collins, 2016).

Following confirmation of the proposed survey boundary, a further ground level tree assessment was undertaken of an additional area. This survey was undertaken on the 25th June 2024 according to the same methodology.

The site is dominated by dense scrub and provides mostly moderate-quality habitat for foraging and commuting bats. Pockets of higher quality habitat are present throughout and include numerous ponds (most of which are ephemeral), areas of woodland and watercourses at the southern and western site boundaries. These habitats will provide an abundance of foraging opportunities, and the site is well connected to the wider landscape to the south and east via watercourses, tree lines and hedgerows, providing high-quality commuting routes. Alternative roosting opportunities are available within the buildings on site and within trees and buildings within the wider industrial estate and surrounding landscape.

No evidence of roosting bats was observed during the inspections, however PRFs were noted in 65 individual trees and 4 groups of trees. Of these, 37 trees and the 4 groups of trees have been assessed as having low potential to support roosting bats and 28 trees as having moderate potential.

All other trees on site have been assessed as having negligible potential to support roosting bats due to an absence of PRFs. Full details of these trees were not recorded due to the large number present on site. Trees assessed as having negligible potential can be felled without restriction with regards to roosting bats.

If any of the trees assessed as having moderate potential to support roosting bats are to be felled as part of the proposals, these trees will need to be subject to further aerial tree inspections and / or bat presence / absence surveys to determine whether they are used by roosting bats. Where possible, trees should first be subject to an aerial tree inspection to allow a close inspection of the features, which can often result in an updated assessment of their roosting potential. Aerial tree inspections can be undertaken any time of year, however any trees that are due to be removed and contain features that are still considered to have moderate or high potential, will need to be subject to at least two further bat presence / absence surveys. Bat presence / absence surveys can only be undertaken from May to September inclusive, with at least half of the surveys undertaken during the peak survey period of May to August inclusive.

If any of the trees assessed as having moderate potential to support roosting bats are to be subject to pruning or any other arboricultural works, no further surveys will be required provided the PRFs can be retained within the trees. If the PRFs are to be removed, the

aforementioned aerial tree inspections and / or bat presence / absence surveys will be required.

In accordance with BCT guidelines, no further survey work is required for trees that have been assessed as having low potential (or negligible potential) to support roosting bats. However, as a precautionary measure, it is recommended that if any trees assessed as having low potential are to be felled or subject to arboricultural works, soft felling techniques or a pre-commencement inspection should be implemented.

All trees and areas of vegetation on site have the potential to support breeding birds. As such, any arboricultural work, tree felling, or vegetation clearance should be undertaken outside of the nesting bird season, and should not be undertaken from March to August inclusive. If this is not possible and works need to commence during the period, a breeding bird nest check can be undertaken immediately prior to the commencement of works by a suitably qualified ecologist and an ecological clerk of works appointed to oversee the works if considered necessary.

In order to compensate for the loss of potential roosting habitats on site, a selection of bat boxes should also be provided, affixed to retained trees and buildings, or incorporated into newly constructed buildings where possible. Additional bat boxes should be provided to ensure there is an enhancement in the roosting opportunities available on site.

The report should be read in conjunction with appendices 1 - 5.

1 INTRODUCTION

1.1 Author, surveyors and qualifications

This report is compiled and written by Noah Fulton BSc, UES Graduate Ecologist. Noah is trained in tree climbing and aerial rescue to CS38 level.

Other surveyors present included:

- Alasdair Grubb BSc ACIEEM, UES Senior Ecologist. Alasdair is licensed by Natural Resources Wales (NRW) to disturb, take and handle all species other than greater horseshoes and lesser horseshoes, under licence number S091891/01. Alasdair is trained in tree climbing and aerial rescue to CS38 level.

- Daniel Smith BSc MScRes, UES Ecologist. Daniel is listed as an accredited agent on the bat survey licence of Toby Hart BSc MCIEEM PIEMA, UES Managing Director. Toby is licensed by Natural Resources Wales to disturb, take and handle all species other than greater or lesser horseshoe under licence number S092789/1. As such, Daniel has been deemed competent by the licence holder to undertake licensable activities including using a torch and endoscope to survey for bats. Daniel is trained in tree climbing and aerial rescue to CS38 level.

- Bethan Beeston BA, UES Field Ecologist. Bethan is trained in tree climbing and aerial rescue to CS38 level.

This report has been reviewed and approved by Tom Kenwright BSc MSc ACIEEM, UES Senior Ecologist. Tom is licensed by Natural Resources Wales to disturb, take and handle all species other than greater or lesser horseshoe under licence number S094176/1.

All surveyors have the knowledge, skills and experience identified within CIEEM's "Competencies for Species Survey: Bats" (2013).

1.2 Survey objectives

UES was commissioned in December 2022 to conduct site surveys which include the following activities:

- Assess the suitability and potential of the trees on site for use by roosting bats

- Conduct detailed endoscope inspections of all trees accessible from ground level, to further assess their potential to support roosting bats and to look for bats or field signs of bats

- Recommend further surveys, mitigation and compensation, where appropriate

1.3 Proposed development

No detailed proposals or tree removal plans have been provided to UES at the time of writing.

1.4 Structure of the report

This report sets out the methodology, results, and recommendations in relation to a specific bat survey. Recommendations are in line with statutory legislation and planning policy objectives.

The report should be read in conjunction with appendices 1 - 5.

2 METHODOLOGY

2.1 General

All surveys were carried out to recognised guidelines, timings and weather conditions, with particular reference to Natural Resources Wales and BCT publications (see references for further information).

The habitats on site and in the surrounding area were also assessed during a walkover survey and through studying aerial photographs in order to gauge their suitability to support roosting, foraging and commuting bats.

2.2 Ground-level tree assessment

A ground-level assessment was undertaken of all trees within the defined survey boundary between the 19th and 27th April 2023, using binoculars and a high-powered torch. All surveys were undertaken by either Alasdair Grubb and Noah Fulton, or Daniel Smith and Noah Fulton.

Trees were inspected on all aspects and assessed for their potential to contain roosting bats, based on the number and quality of suitable roosting features present, as detailed in BS8596:2015 Surveying for Bats in Trees and Woodland and BCT guidelines (Collins, 2016).

Potential roosting features, as described in Bat Roosts in Trees (Bat Tree Habitat Key, 2018) are listed in Table 1 below.

Table 1 – Types of PRFs found in trees

DISEASE & DECAY FEATURES	DAMAGE FEATURES	ASSOCIATION FEATURES	OTHER FEATURES
Woodpecker holes	Lightning strikes	Fluting	Bat boxes
Squirrel holes	Hazard beams	Ivy	Bird boxes
Knot holes	Subsidence cracks		
Pruning cuts	Shearing cracks		
Tear-outs	Transverse snaps		
Wounds	Welds		
Cankers	Lifting bark		
Compression forks	Desiccation fissures		
Butt rots	Frost cracks		

Based on the quality of features present, trees were assessed as having negligible, low, moderate or high suitability for roosting bats.

Where accessible at ground level, PRFs were inspected with an endoscope by the licensed ecologist, in order to identify any roosting bats or field signs of bats and to inspect the internal conditions of the PRF. Field signs of bats searched for included:

- Scratches, staining or droppings around entry points or within a cavity
- Presence of bat-fly cases
- Odour

- Smoothing of surfaces around cavity
- Audible chattering / squeaking at dusk or in warm weather (during the active season)

2.3 Survey limitations

The density of the scrub across much of the site limited the accessibility of some areas. Where mature and semi-mature trees were observed within particularly dense areas of scrub that prevent full accessibility, trees were assessed from as close as possible using binoculars. Due to the young age of the scrub across the majority of the survey area, trees with suitability to support roosting bats are limited and generally clustered in specific areas. In addition, the density of the scrub significantly reduces the suitability of such areas for use by roosting bats, which are not adapted to flight within scrub of this density and are much more likely to roost in more accessible features on site and within the local area. As such, this is not considered be a significant limitation and as robust an assessment as possible has been undertaken.

3 RESULTS

3.1 Habitat assessment

Oaks is located within Wrexham Industrial Estate, south-east of the city of Wrexham. The proposed development site is dominated by dense scrub with scattered trees, ponds and derelict buildings. Small stands of more mature scrub and broadleaved woodland are present within the southern section of the site. Small areas of disturbed ground and semi-improved grassland are also present across the site. Redwither Brook flows along part of the western site boundary and the Clywedog River demarcates the southern site boundary.

The surrounding area consists of commercial, office and warehouse buildings with well-lit roads which may cause noise and light pollution for commuting bats. However, there is an extensive area of arable land with hedge-lined fields and tree lines to the south of the proposed development site. These habitats provide low-moderate quality foraging and commuting opportunities for bats.

The wider surrounding areas consists of further industrial estate buildings to the north and arable fields bordered by hedgerows and tree lines to the south of the site. There are additional woodland habitats within the surrounding areas which may provide commuting, foraging and roosting opportunities for bats, all of which are connected to the site by hedgerows and tree lines.

3.2 Ground level tree assessments

All trees within the survey boundary were subject to a detailed ground level assessment to search for PRFs which could support roosting bats. Trees assessed as having low or moderate potential to support bats were recorded and are detailed below. Trees assessed as having negligible potential to support roosting bats have not been included within this report. A total of 65 trees and 4 groups of trees were found to contain PRFs.

T1 is a mature crack willow *Salix fragilis* is located along the northern boundary of the site and surrounded by dense scrub. The main stem of the tree has broken at the stem and therefore, currently stands at a height of approximately 3m with a diameter at breast height (DBH) of 17cm. A single PRF is present in the form of a split in the broken stem, forming a shallow horizontal cavity. The tree is considered to have low roosting potential.

T2 is a mature hawthorn *Crataegus monogyna* located along the northern boundary of the site and is surrounded by dense scrub. It is approximately 10m in height with a DBH of 30cm. The tree contains a welds with three cavities, two of which are located on the eastern aspect and the other on the western aspect. This tree is considered to have low potential to support roosting bats.

T3 is a mature multi-stem hawthorn along the northern site boundary that is surrounded by dense scrub. It is approximately 5m in height with a DBH of 30cm. The tree has dense ivy cover on all aspects, the stems of which create a number of small and shallow cavities that are each could be used by a single roosting bat. This tree is considered to have low potential to support roosting bats.

T4 is a mature pedunculate oak *Quercus robur* that is located along the northern site boundary within a pocket of dense scrub. It is approximately 12m in height with a DBH of 1m. The tree has dense ivy on all aspects that provides an abundance of small features in itself that could be used by individual roosting bats. Furthermore, the dense coverage may obstruct additional

features that can't be observed from the ground level. As such, this tree has been assessed as having moderate potential to support roosting bats on a precautionary basis.

T5 is a mature pedunculate oak that is located along the northern site boundary within a pocket of dense scrub. It is approximately 5m in height with a DBH of 1m. The tree contains two features, a large stem cavity that extends upwards approximately 2.5m. The tree also has dense ivy cladding on all aspects. This tree is considered to have moderate potential to support roosting bats.

T6 is a mature pedunculate oak that is located along the northern site boundary and is surrounded by dense hawthorn scrub. The tree measures approximately 11m in height with a DBH of 1.3m. The tree contains a single feature, a callus roll on a south-western protruding limb that extends 10cm upwards. This tree is considered to have low potential to support roosting bats.

T7 is a mature pedunculate oak that is located along the northern site boundary and is surrounded by dense hawthorn scrub. The tree measures approximately 12m with a DBH of 70cm. The tree features a single callus roll on the eastern aspect of the stem that runs from 0 to 3.5m in height. This tree is considered to have moderate potential to support roosting bats.

T8 is a mature multi-stem goat willow *Salix caprea* that is located along the western site boundary within an area of dense scrub. It is approximately 5m in height with a DBH of 25cm. The tree contains a single feature, a break in one of the fallen stems at 1m, extending inward 5 to 10cm and containing room for a single roosting bat. The tree is considered to have low potential to support roosting bats.

T9 is a mature pedunculate oak surrounded by dense scrub. It is approximately 11m in height with a DBH of 93cm. The tree contains seven features comprising a knot hole on the south-western aspect, a deadwood branch cavity located between the branch itself and the western protruding limb, a pruned branch crack on the southern aspect, flaking bark surrounding the deadwood on the southern aspect, deadwood on the eastward facing limb, a pruned branch with surrounding rot on the north-western facing limb and deadwood on the main stem. This tree is considered to have moderate potential to support roosting bats.

T10 is a mature pedunculate oak located in the north-western corner of the site and is surrounded by dense scrub to the north, east and south, with a hardstanding pathway to the adjacent west. It is approximately 12m in height with a DBH of 70cm. The tree contains two features, a multi-chambered stem cavity at 0 to 1m on the south-eastern aspect with a prominent upward chamber that extends 70cm. Northern facing callus roll is also present on a southward protruding limb at 3m. This tree is considered to have moderate potential to support roosting bats.

T11 is a mature multi-stem hawthorn that is located within the dense scrub. It is approximately 8m in height with a DBH of 20cm. The tree contains a split between two of the stems at 1m containing a central cavity on the easternmost stem. The cavity extends downward 5 to 10cm. This tree is considered to have low potential to support roosting bats.

T12 is a mature multi-stem hawthorn that is located within dense scrub. The tree measures approximately 8m in height with a DBH of 30cm. PRFs include a single cavity where the two stems cross at 1.5m on the north-easternmost stem and extending upward 15cm. This tree is considered to have low roosting potential.

T13 is a mature pedunculate oak that is located within dense scrub. It is approximately 14m in height with a DBH of 105cm. The tree contains three features, an upward facing callus roll on an eastward protruding limb at 3m. A Callus roll that runs the length of a branch at 3m on

the northern aspect. A knot hole is present on the western aspect at 3m. This tree is considered to have moderate potential to support roosting bats.

T14 is a mature pedunculate oak that is surrounded by a mixture of dense scrub and semi-improved neutral grassland. It is approximately 16m in height with a DBH of 100cm. The tree contains four features. A branch with inward rot containing two identifiable holes on the southern aspect at 6m, a callus roll with a rotten branch at 7m on a north-western facing limb, a downward facing knot hole with a protruding rotten branch at 4m on the south-western aspect and a knot hole with inward rot on the main stem at 8m on the south-western aspect. Numerous other features are present within the canopy that could not be fully inspected from the ground level. This tree is considered to have moderate potential to support roosting bats.

T15 is a mature multi-stem hawthorn that is located directly below the canopy of T14. It is approximately 3m in height with a DBH of 16cm. The tree features a stem cavity at 0.5m on the western aspect that is suitable to support a single roosting bat. The cavity extends vertically for 10cm. This tree is considered to have low potential to support roosting bats.

T16 is a mature multi-stem hawthorn that is located directly below the canopy of T14. It is approximately 4m in height with a DBH of 16cm. The tree features a single cavity where a branch has broken from the main stem at 1.5m and extending inward 20cm. This tree is considered to have low potential to support roosting bats.

T17 is a mature pedunculate oak within an area of dense scrub. It is approximately 13m in height with a DBH of 40cm. The tree contains a single suitable feature, a callus roll at 4m on the eastern aspect. Deadwood was identified at 3m on the western aspect, however this could be fully inspected from ground level using binoculars and a high-powered torch and was found to be superficial and unsuitable to support roosting bats due to the absence of a sheltered cavity. This tree is considered to have moderate potential to support roosting bats.

T18 is a mature multi-stem hawthorn that is located within dense scrub. It is approximately 7m in height with a DBH of 20cm. The tree features a branch crack at 2.5m on the south-eastern aspect that extends inward 5cm. This tree is considered to have low potential to support roosting bats.

T19 is a mature multi-stem hawthorn that is located within an area of dense scrub. It is approximately 8m in height with a DBH of 30cm. A single weld is present on the main stem at 25cm on the southern aspect, extending inward approximately 10cm. This tree is considered to have low potential to support bats.

T20 is a mature hawthorn that is located within the dense scrub. It is approximately 6m in height with a DBH of 20cm. A stem cavity is present at 20cm on the southern aspect and extends upward 15cm. This tree is considered to have low potential to support roosting bats.

T21 is a mature pedunculate oak that is located within a small pocket of semi-improved neutral grassland. It is approximately 12m in height with a DBH of 60cm. The tree contains seven features. A stem cavity at 2m on the north-western aspect that could not be fully inspected due to the presence of a bee hive, a callus roll at 3.5m on the western aspect, a deadwood branch with inward rot where it meets the main stem at 5m on the northern aspect, a branch cavity at 8m on an eastward protruding branch, a knot hole at 8.5m on the south-western aspect, a knot hole with protruding deadwood (adjacent to the 8.5m knot hole) and a tear out with flaking bark at 4m on a southward extending limb. The tree is considered to have moderate potential to support roosting bats.

T22 is a mature multi-stem hawthorn located within an area of dense scrub. It is approximately 7m in height with a DBH on the largest stem of 10cm. A single feature is present where the

tree stems overlap to form a cavity that extends upward 5 to 10cm. The tree is surrounded by hawthorn scrub, however, is less dense that in other areas. The tree is considered to have low potential to support roosting bats.

T23 is a mature multi-stem hawthorn located within dense scrub It is approximately 5m in height with a DBH of 15cm. The tree features a single cavity at 2m where the branches overlap on the southern aspect, extending upward 10cm. The tree is considered to have low potential to support roosting bats.

T24 is a mature crack willow. The tree is sloped and standing at a height of 3m with a DBH of 20cm. The tree features a branch cavity at 50cm on the western aspect. The feature was seen to extend upward 20cm. This tree is considered to have moderate potential to support roosting bats.

T25 is a mature multi-stem goat willow. It is approximately 6m in height with a DBH of 20cm. The tree features a weld at 2.5m on the eastern aspect that extends inward approximately 7cm. This tree is considered to have low potential to support roosting bats.

T26 is a dead pedunculate oak that is located within dense scrub. It is approximately 9m in height with a DBH of 50cm. The tree contains four features. A stem cavity at 5m on the northern aspect, numerous cracks within the bark and main stem, a broken branch with inward rot on a southward protruding limb at 9m on the northern aspect and a woodpecker hole at 8.5m on the northern aspect of the southern facing limb. This tree is considered to have moderate potential to support roosting bats.

T27 is a mature goat willow that is located within dense scrub. It is approximately 8m in height with a DBH of 10cm. The tree features a single cobwebbed rot hole at 2m on the southern aspect that extends vertically 10cm. This tree is considered to have low potential to support roosting bats.

T28 is a mature pedunculate oak that is located within dense scrub. It is approximately 11m in height with a DBH of 60cm. The tree contains three features. A wound within the rotting bark also showing a broken branch at 3m on the north-eastern aspect, inward rot on a deadwood branch at 4m on the western aspect and a broken branch wound at 4m on the north-eastern aspect. This tree is considered to have moderate potential to support roosting bats.

T29 is a mature pedunculate oak that is located within dense scrub. It is approximately 8m in height with a DBH of 20cm. A single feature is present in the form of a broken branch cavity at 4.5m on the western aspect. This tree is considered to have low potential to support roosting bats.

T30 is a mature hawthorn that is located within the dense scrub. It is approximately 9m in height with a DBH of 30cm. The tree features a cavity between the branch and the stem at 1.5m on the south-eastern aspect that extends downward 15cm. This tree is considered to have low potential to support roosting bats.

T31 is a mature sycamore *Acer pseudoplatanus* that is located within dense scrub. It is approximately 7m in height with a DBH of 20cm. The tree has dense ivy cover on all aspects that may provide a number of small crevices that are suitable for use by bats. The ivy may also obscure other features present. The tree is considered to have low potential to support roosting bats.

T32 is a mature pedunculate oak that is located within dense scrub. It is approximately 8m in height with a DBH of 60cm. The tree has dense ivy cover on all aspects that may provide a

number of suitable crevices. This tree is considered to have moderate potential to support roosting bats.

T33 is a mature crack willow located within dense scrub. It is approximately 9m in height with a DBH of 70cm. The tree contains three features. An inward branch rot on a northward protruding limb at 5.5m extending upward 5cm, a tear out at 3m on the southern aspect, extending inward 5cm and a callus roll at 4m on a south-eastward protruding limb extending inward 5cm. This tree is considered to have low potential to support roosting bats.

T34 is a mature pedunculate oak that is located within a pocket of woodland. The tree is surrounded by a mix of dense scrub and tall ruderal vegetation. It is approximately 9m in height with a DBH of 30cm. The tree has three mains stems that are converge at the base of the main trunk. The tree contains a pruned branch split at 4m on the north-eastern aspect. This tree is considered to have low roosting potential.

T35 is a mature pedunculate oak that is located amongst a mixture of bramble scrub and tall ruderal, alongside a mixture of goat willow, crack willow and hawthorn. It is approximately 10m in height with a DBH of 70cm. The tree contains a deadwood branch at 1.5m on the south-western aspect that was observed to extend inward 6cm. A callus roll is present at 8m on the western aspect. This tree is considered to have moderate roosting potential.

T36 is a mature hawthorn. It is approximately 10m in height with a DBH of 60cm. The tree features dense ivy cover on all aspects that creates a number of small crevices that are suitable for use by individual roosting bats. This tree is considered to have low potential to support roosting bats.

T37 is a mature, multi-stem hawthorn with a number of dead limbs. It is approximately 9m in height with a DBH of 40cm. The tree contains four features. A deadwood limb at 2.5m with numerous cavities and rot holes that extend upward 10cm on the north-eastern aspect, deadwood on a south-western facing limb at 2.5m, a stem cavity at 0.5m on the southernmost limb extending inward 30cm and a broken stem on the eastern most protruding limb at 4.5m. This tree is considered to have moderate potential to support roosting bats.

G1 is a collection of mature goat willows. The group have a maximum approximate height of 5m with an average DBH of 30cm. The trees have dense ivy cover on all aspects that may provide a number of crevices that are suitable for use by individual roosting bats. The group is considered to have low potential to support roosting bats.

T38 is a mature goat willow. The tree is approximately 10m in height with a DBH of 30cm. The tree contains a single feature, a broken branch at 4m on the north-western aspect. The tree is considered to have low potential to support roosting bats.

T39 is a mature crack willow. It is approximately 12m in height with a DBH of 60cm. A single feature is present, a deadwood limb at 3m on the western aspect with flaking bark. The tree is considered to have low potential to support roosting bats.

T40 is a mature goat willow. It is approximately 10m in height with a DBH of 15cm. The tree contains a single feature, a rot hole at 3.5m on the north-western aspect that extends inward 5cm. The tree is considered to have low potential to support roosting bats.

T41 is a mature pedunculate oak. It is approximately 12m in height with a DBH of 60cm. The tree contains two low potential features, a pruned branch with inward rot at 6m on the northern aspect that extends vertically 5cm and a deadwood branch with a single knot hole at 1.5m on the eastern aspect that extends vertically 5cm. The tree is considered to have low potential to support roosting bats.

T42 is a mature goat willow. It is approximately 12m in height with a DBH of 40cm. The tree contains a single moderate potential feature, a rot hole at 1.2m on the main stem that protrudes upward approximately 20cm on the south-western aspect. The tree is considered to have moderate potential to support roosting bats.

T43 is a mature goat willow. It is approximately 7m in height with a DBH of 40cm. The tree contains nine features: a tear out at 1.5m on the south-western limb, extending inward 10cm with low potential, a knot hole at 2m on the south-western aspect of the main stem, extending 20cm upward with moderate potential, a knot hole at 2.2m directly above the previous feature on the main stem, extending downward 15cm and upward 7cm with moderate potential, a knot hole at 3m directly above the previous feature at 3m on the main stem with moderate potential and a tear out at 2.5m on a westward extending limb, extending downward 5cm with low potential, a callus roll with inward rot at 4m on a north-western facing limb, extending downward 15cm with low potential, rot holes at 2.5m on a north-western facing deadwood limb, extending inward 10cm with low potential, an upward facing knot hole at 75cm on a southern facing stem extending inward 20cm with moderate potential and two callus rolls at 4m on a north-western facing limb extending inward 40cm with moderate potential. The tree is considered to have moderate potential to support roosting bats.

G2 is a grouping of seven hawthorns. The group is approximately 8m in height with an average DBH of 20cm. A single feature is present across all of the trees in the form of dense ivy cover. The group is considered to have low potential to support roosting bats.

T44 is a mature goat willow. It is approximately 12m in height with a DBH of 60cm. The tree has two features, a rot hole at 2m on the north-western aspect directly beside a pruned branch and two woodpecker holes that are located close to one another at 5m on a northern facing limb. The tree is considered to have moderate potential to support roosting bats.

T45 is a mature goat willow. It is approximately 13m in height with a DBH of 30cm. The tree contains four features, three of which have moderate potential. A woodpecker hole at 11m on a western facing limb, an eastward facing rot hole at 4m on the main stem and a tear out at 7m on the eastern aspect. There is a single low potential broken branch at 7m on the north-western aspect. The tree is considered to have moderate potential to support roosting bats.

T46 is a mature goat willow. It is approximately 17m in height with a DBH of 50cm. The tree contains five features, two of which have moderate potential. A callus roll at 4.5m on the northern aspect and a rot hole at 1m on the eastern aspect that extends upward 5cm. The low potential features comprise a broken branch at 4m on the north-western aspect, extending downward 10cm, an upward facing callus roll at 4m on a north-eastern limb that extends upward 20cm and a callus roll with inward rot at 4m on a southern facing limb that extends upward 15cm. The tree is considered to have moderate potential to support roosting bats.

T47 is a mature goat willow. It is approximately 8m in height with a DBH of 20cm. The tree contains a single moderate potential feature, a south-eastern facing stem cavity at 0.5m that extends upward 1m. The tree is considered to have moderate potential to support roosting bats.

T48 is a mature pedunculate oak. It is approximately 12m in height with a DBH of 35cm. The tree contains a single low potential feature, a callus roll at 5m on a north-eastern facing limb that extends upward, extending inward 10cm. The tree is considered to have low potential to support roosting bats.

T49 is a mature goat willow. It is approximately 9m in height with a DBH of 30cm. The tree contains a single moderate potential feature, a downward facing rot hole at 5m on the north-

eastern aspect, located at a fork between two branches. There is a single low potential rot hole at 2.5m on the north-western aspect. The tree is considered to have moderate potential to support roosting bats.

T50 is a mature multi-stemmed goat willow. It is approximately 11m in height with a DBH of 50cm. The tree contains five features, three of which have moderate potential to support roosting bats. A rot hole at 1.5m on the main stem facing westward extending upward 15cm, a callus roll with inward rot at 2m on the southern stem extending upward 10cm and a callus roll with inward rot at 1.9m on a south-eastern branch extending upward 3cm. There are two low potential features that comprise a rot hole on a broken branch at 1.5m on an eastern limb extending downward 20cm and a broken branch of the same eastern facing limb at 1.9m extending vertically 5 to 10cm. The tree is considered to have moderate potential to support roosting bats.

T51 is a mature goat willow located. It is approximately 10m in height with a DBH of 30cm. The tree contains a single moderate potential feature. A woodpecker hole at 3m on the north-western aspect. The tree is considered to have moderate potential to support roosting bats.

T52 is a mature goat willow. It is approximately 11m in height with a DBH of 20cm. The tree contains a single low potential tear out at 1.5m on the eastern aspect that extends upward 5cm. The tree is considered to have low potential to support roosting bats.

T53 is a mature multi-stemmed goat willow. It is approximately 10m in height with a DBH of 20cm. The tree contains a single moderate potential tear out with inward rot at 3m on the north-eastern aspect of the main stem. The tree is considered to have moderate potential to support roosting bats.

T54 is a mature goat willow. The tree measures 11m in height with a DBH of 30cm. The tree contains two features, one of which has moderate potential. A stem cavity at 1.5m on the eastern aspect. The feature extends upward 15cm. A low potential cavity is present at 1m and measures 1m in length, extending inward 10cm. The tree is considered to have moderate potential to support roosting bats.

T55 is a mature goat willow. The tree measures 10m in height with a DBH of 30cm. The tree contains a single moderate potential callus roll on the main stem, on the northern facing aspect. The entrance measures 5cm x 5cm. The tree is considered to have moderate potential to support roosting bats.

T56 is a mature goat willow. The tree measures 10m in height with a DBH of 1m. The tree contains a single low potential cracked branch at 0.5m on a south-eastern limb, extending inward 7cm. The feature measures 0.5cm x 0.7cm. the entrance itself measures 2cm x 2cm. The tree is considered to have low potential to support roosting bats.

T57 is a mature goat willow. The tree measures 12m in height with a DBH of 50cm. The tree contains a single low potential callus roll at 2m on the northern aspect, extending inward 10cm. The tree is considered to have low potential to support roosting bats.

T58 is a mature goat willow. The tree measures 12m in height with a DBH of 30cm. The tree contains a single low potential stem cavity at 30cm on the western aspect. The feature is very low to the ground. Slugs were observed within. The entrance measures 5cm x 5cm and extends inward 10cm. The tree is considered to have low potential to support roosting bats.

T59 is a mature multi-stemmed goat willow. The tree measures 11m in height with a DBH of 60cm. The tree contains a single low potential feature. A branch crack at 0.5m on a south-

eastern branch, extending inward 5 to 10cm. The feature measures 1m x 5cm. The tree is considered to have low potential to support roosting bats.

G3 is a group of fourteen mature goat willows. The group has an average height of 10m and an average DBH of 20cm. The trees are densely covered with ivy that is considered to be mature enough to support individual or a small number of bats within the crevices of overlapping stems. The trees have low potential to support roosting bats.

T60 is a mature multi-stemmed goat willow. The tree measures 9m in height with a DBH of 45cm. The tree contains a single low potential rot hole at 4m on a south-eastern limb. The entrance measures 10cm x 10cm and extending inward <5cm. The tree is considered to have low potential to support roosting bats.

T61 is a mature goat willow. The tree measures 13m in height with a DBH of 30cm. The tree contains two moderate potential features. A woodpecker hole at 5m on the eastern aspect with an entrance measuring 10cm x 5cm. A second woodpecker is located at 5m on the north-eastern facing aspect of the main stem with an entrance measuring 10cm x 5cm. The tree is considered to have moderate potential to support roosting bats.

T62 is a mature goat willow. The tree measures 12m in height with a DBH of 30cm. The tree contains thick ivy cover on the main stem that could provide suitable potential roosting features for individual or low numbers of bats. The tree is considered to have low potential to support roosting bats.

T63 is a mature pedunculate oak. The tree measures 12m in height with a DBH of 40cm. The tree contains thick ivy cover on the main stem. The tree is considered to have low potential to support roosting bats.

G4 is a group of ivy clad hawthorns. The group has an average height of 5m and an average DBH of 20cm. The group contains thick ivy cover on the main stem that could provide suitable potential roosting features for individual or low numbers of bats. The trees are considered to have low potential to support roosting bats.

4 EVALUATION AND RECOMMENDATIONS

4.1 Evaluation of results

The site is dominated by dense scrub and provides mostly moderate-quality habitat for foraging and commuting. Pockets of higher quality habitat are present throughout and include numerous ponds (most of which are ephemeral), areas of woodland and watercourses. These habitats will provide an abundance of foraging opportunities and the site is connected to the wider landscape to the south and east via watercourses, tree lines and hedgerows, providing high-quality commuting routes.

A total of 37 individual trees and 4 groups of trees on site have been assessed as having low potential to support roosting bats. 28 trees have been assessed as having moderate potential (see Table 2).

See Table 2 below for a summary of the potential of the trees on site to support roosting bats.

Table 2 – Summary of bat roosting potential of trees on site

Low	Moderate
T1, T2, T3, T6, T8, T11, T12, T15, T16, T18, T19, T20, T22, T23, T25, T27, T29, T30, T31, T33, T34, T36, G1, T38, T39, T40, T41, G2, T48, T52, T56, T57, T58, T59, G3, T60, T62, T63, T64, T65, G4	T4, T5, T7, T9, T10, T13, T14, T17, T21, T24, T26, T28, T32, T35, T37, T42, T43, T44, T45, T46, T47, T49, T50, T51, T53, T54, T55, T61

All other trees within the survey boundary were assessed as having negligible potential to support roosting bats.

4.2 Mitigation and compensation measures

4.2.1 Mitigation

If any of the trees assessed as having moderate potential to support roosting bats are to be felled as part of the proposals, these trees will need to be subject to further aerial tree inspections and / or bat presence / absence surveys to determine whether they are used by roosting bats. Where possible, trees should first be subject to an aerial tree inspection to allow a close inspection of the features, which can often result in an updated assessment of their roosting potential. Aerial tree inspections can be undertaken any time of year, however any trees that are due to be removed and contain features that are still considered to have moderate or high potential, will need to be subject to at least two further bat presence / absence surveys. Bat presence / absence surveys can only be undertaken from May to September inclusive, with at least half of the surveys undertaken during the peak survey period of May to August inclusive.

If any of the trees assessed as having moderate potential to support roosting bats are to be subject to pruning or any other arboricultural works, no further surveys will be required provided the PRFs can be retained within the trees. If the PRFs are to be removed, the

aforementioned aerial tree inspections and / or bat presence / absence surveys will be required.

In accordance with BCT guidelines, no further survey work is required for trees that have been assessed as having low potential (or negligible potential) to support roosting bats. However, as a precautionary measure, it is recommended that if any trees assessed as having low potential are to be felled or subject to arboricultural works, soft felling techniques or a pre-commencement inspection should be implemented.

Soft felling techniques involve cutting the tree in sections and lowering any section containing PRFs to the ground. Once lowered to the ground, the PRFs should be left facing upwards overnight, before being removed from the site at a minimum of 24 hours later. Alternatively, the features associated with these trees could also be inspected with an endoscope to confirm bat absence immediately prior to the felling of the tree or pruning of the branch containing the feature. In the unlikely event that a roosting bat is observed, works must stop immediately until a licence can be secured from Natural Resources Wales to allow the removal of the bat roost.

4.2.2 Compensation and enhancement

Where possible, trees should be retained and protected on site, so that they can continue to provide ecosystem services to local wildlife, which may use them for foraging, commuting, roosting or nesting purposes.

To compensate for the loss of roosting habitat, at least one bat box should be provided on site for each of the trees with bat roost potential that are removed. Additional bat boxes should be provided to enhance the ecological value of the site.

Bat boxes should include a variety of models and could include:

- Schwegler 2F bat box
- Schwegler 1FF bat box
- Schwegler 2FN bat box
- Schwegler 1FS bat box
- Schwegler 2FR bat tube (incorporated into newly constructed buildings)

All bat boxes should be fitted at a height of 5-6 metres (slightly higher than usual to reduce the potential for vandalism or theft), on a southerly aspect, with no clutter around the entrance by surrounding branches. External lighting must be directed away from installed bat boxes to increase the likelihood of occupancy. For more information, see Appendix 5 – External lighting guidance.

4.2.3 Nesting birds

All trees and areas of vegetation on site have the potential to support breeding birds. As such, any arboricultural work, tree felling, or vegetation clearance should be undertaken outside of the nesting bird season, and should not be undertaken from March to August inclusive. If this is not possible and works need to commence during the period, a breeding bird nest check can be undertaken immediately prior to the commencement of works by a suitably qualified ecologist and an ecological clerk of works appointed to oversee the works if considered necessary.

5 CONCLUSION

The site is dominated by dense scrub and provides mostly moderate-quality habitat for foraging and commuting. Pockets of higher quality habitat are present throughout and include numerous ponds (most of which are ephemeral), areas of woodland and watercourses. These habitats will provide an abundance of foraging opportunities, and the site is connected to the wider landscape to the south and east via watercourses, tree lines and hedgerows, providing high-quality commuting routes.

37 trees and 4 groups of trees have been assessed as having low potential to support roosting bats and 28 trees have been assessed as having moderate potential. If any trees with low or moderate potential are to be felled or otherwise impacted by the proposals, further survey work and mitigation measures will be required, as detailed in section 4.2.1 of this report.

All trees and areas of vegetation on site have the potential to support breeding birds. As such, any arboricultural work, tree felling, or vegetation clearance should be undertaken outside of the nesting bird season, and should not be undertaken from March to August inclusive. If this is not possible and works need to commence during the period, a breeding bird nest check can be undertaken immediately prior to the commencement of works by a suitably qualified ecologist and an ecological clerk of works appointed to oversee the works if considered necessary.

6 REFERENCES

Bat Tree Habitat Key (2018). *Bat Roosts in Trees*.

Chartered Institute of Ecology and Environmental Management (2013). *Competencies for Species Survey: Bats*.

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

Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines.* English Nature.

Mitchell-Jones, A.J. & McLeish, A.P. (2004). *The Bat Workers Manual.* (3rd ed.) JNCC.

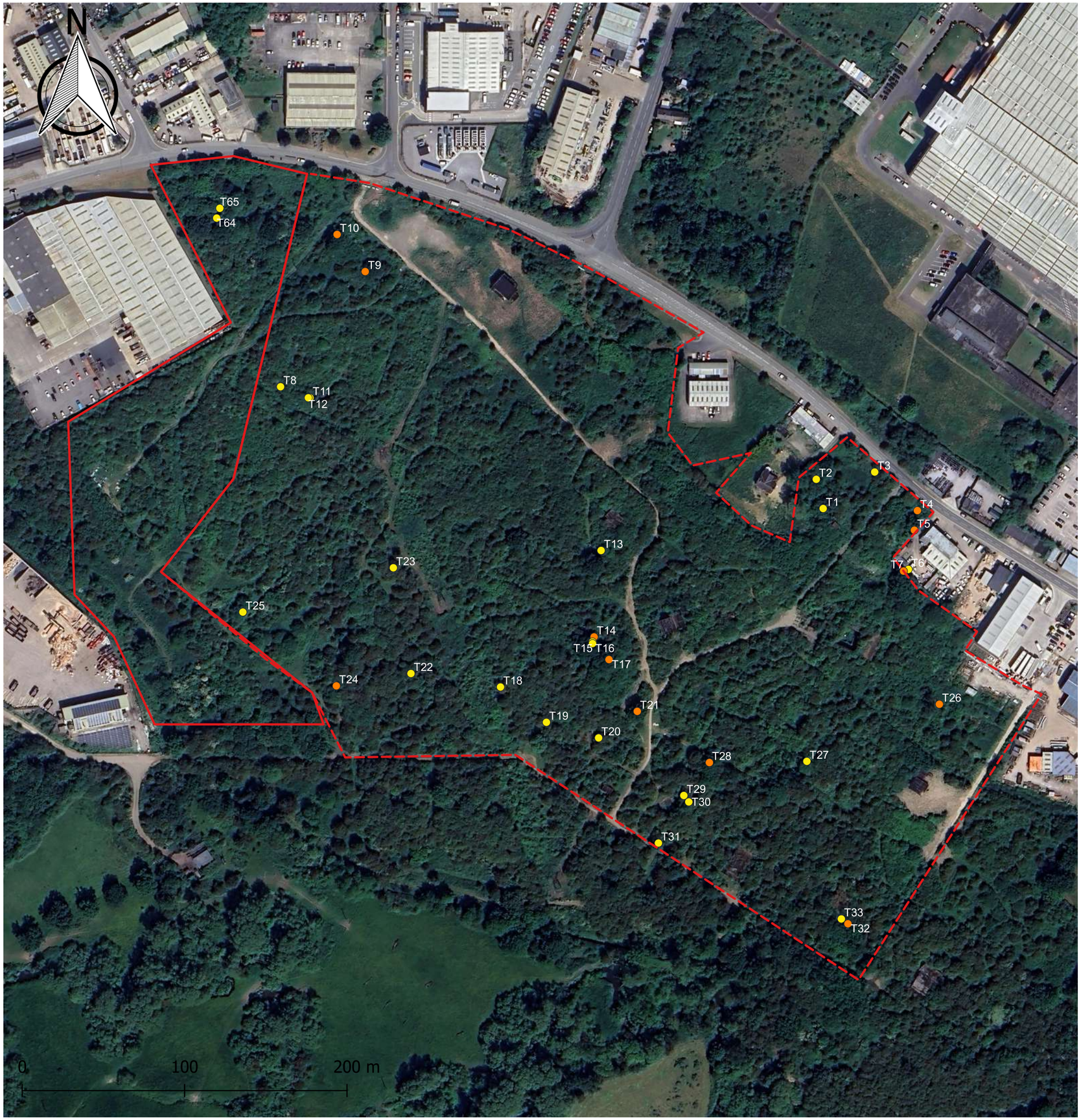
Welsh Government (2024). Planning Policy Wales. 12th Edition.

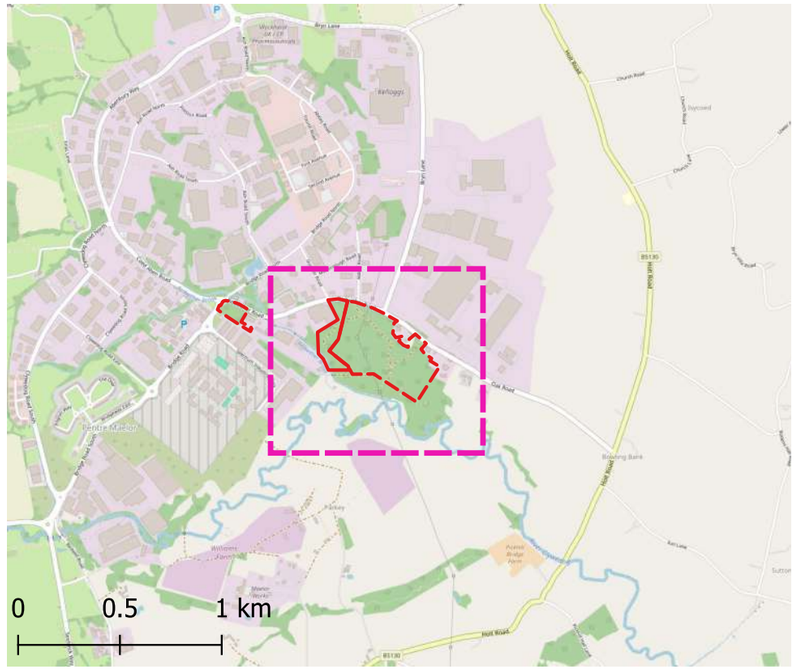
APPENDICES

Appendix 1 – Tree plan

Ground Level Tree Assessment

Site: The Oaks, Wrexham
NGR: SJ 38699 49320
Author: Tom Kenwright
Date: 02/04/2025





KEY:

- 2023 survey boundary
- 2024 survey boundary
- Trees with low bat roosting potential
- Trees with moderate bat roosting potential

Map data © 2025 Google, Imagery © 2025 Google

THIS PLAN IS BASED UPON OpenStreetMap® AND IS OPEN DATA, LICENSED UNDER THE OPEN DATA COMMONS OPEN DATABASE LICENCE (ODbl) BY THE OpenStreetMap FOUNDATION.

THIS PLAN IS ISSUED BY UNITED ENVIRONMENTAL SERVICES LTD SUBJECT TO THE CONDITION THAT IT IS NOT COPIED EITHER IN WHOLE OR IN PART OR DISCLOSED TO THIRD PARTIES UNLESS PRIOR WRITTEN AUTHORISATION IS GIVEN.

Ground Level Tree Assessment

Site: The Oaks, Wrexham
NGR: SJ 38699 49320
Author: Tom Kenwright
Date: 02/04/2025





KEY:

- 2023 survey boundary
- Trees with low bat roosting potential
- Trees with moderate bat roosting potential

Map data © 2025 Google, Imagery © 2025 Google

THIS PLAN IS BASED UPON OpenStreetMap® AND IS OPEN DATA, LICENSED UNDER THE OPEN DATA COMMONS OPEN DATABASE LICENCE (ODbl) BY THE OpenStreetMap FOUNDATION.

THIS PLAN IS ISSUED BY UNITED ENVIRONMENTAL SERVICES LTD SUBJECT TO THE CONDITION THAT IT IS NOT COPIED EITHER IN WHOLE OR IN PART OR DISCLOSED TO THIRD PARTIES UNLESS PRIOR WRITTEN AUTHORISATION IS GIVEN.

Appendix 2 – Survey results

Appendix 2 - Survey results

Site: The Oaks, Wrexham Industrial Estate **Job no:** UES03918 **Date:** 02/04/2025 **Surveyors:** Noah Fulton, Daniel Smith, Alasdair Grubb & Bethan Beeston

Table 3 – Summary of trees surveyed

Tree ref / GPS	Species	Age Dead/ alive	Height (m) / DBH (m)	Description of PRF(s) & position in tree	BCT Cat. (N/L/M /H)	Surrounding habitat context	All aspects of tree seen? Y/N	Climbable (only if qualified)	Photo no.	Notes from inspection of PRF(s)
T1 / SJ 38901 49299	Crack willow *Salix fragilis*	Mature / Alive	3 / 0.17	T1.1 Stem split measuring 14cm x 5cm and extending inward 20cm on the southern aspect.	L	Along the northern boundary of the site. Surrounded by dense scrub.	Y	N	1 - 2	Could be fully inspected from ground level. Cavity is exposed and broadly unsuitable.
T2 / SJ38902 49317	Hawthorn *Crataegus monogyna*	Mature / Alive	10 / 0.3	T2.1 A weld with three small cavities. Two on the eastern aspect and one on the western aspect at 2.5m. Measuring 2cm x 2cm and extending upward by a maximum of 10cm.	L	Along the northern boundary of the site. Surrounded by dense scrub.	Y	N	3 - 4	Could be fully inspected from ground level.
T3 / SJ38937 49335	Hawthorn	Mature / Alive	5 / 0.3	T3.1 Dense ivy cover forming small crevices suitable for use by individual bats.	L	Along the northern boundary of the site. Surrounded by dense scrub.	Y	N	5 - 6	
T4 / SJ90918 72946	Pedunculate oak *Quercus robur*	Mature / Alive	12 / 1	T4.1 Dense ivy cover on the main stem.	M	Along the northern boundary of the site. Surrounded by dense scrub.	N	Y	7	Dense ivy cover provides numerous small cavities that could be used by individual roosting bats and may obscure the view of concealed PRFs.

T5 / SJ38962 49285	Pedunculate oak	Mature / Alive	5 / 1	Two features including: T5.1 A stem cavity at 1.5m, extending 2.5m upwards. T5.2 Dense ivy cover on the main stem.	M	Located along the northern site boundary to the south-east of T4. Surrounded by dense scrub.	N	Y	8 - 9	
T6 / SJ38956 49260	Pedunculate oak	Mature / Alive	11 / 1.3	T6.1 Callus roll on a south-western extending limb, cavity extends upward 10cm.	L	Located along the northern site boundary. Surrounded by dense hawthorn scrub.	Y	Y	10 - 11	Could be fully inspected from ground level.
T7 / SJ38955 49261	Pedunculate oak	Mature / Alive	12 / 1.1	T7.1 Callus roll on the eastern aspect of the main stem. Running from 0 - 3.5m	M	Located along the northern site boundary. Surrounded by dense hawthorn scrub.	Y	Y	12 - 13	
T8 / SJ38572 49378	Goat willow *Salix caprea*	Mature / Alive	5 / 0.25	T8.1 Break in one of the stems where fallen at 1m. Extending inward 5 to 10cm.	L	Located along the western site boundary. Surrounded by dense scrub.	Y	Y	14 - 15	Could be fully inspected from ground level.
T9 / SJ38626 49449	Pedunculate oak	Mature / Alive	11 / 0.93	Seven features including: T9.1 rot hole at 2m on the south-western aspect with protruding deadwood. T9.2 Deadwood branch cavity at 4m between a branch and the western limb.	M	Located within an area of dense scrub.	Y	Y	16 - 22	

				T9.3 A pruned branch at 4m on the southern aspect. T9.4 Flaking bark surrounding a deadwood limb at 2m on the southern aspect. T9.5 Deadwood at 4m off the east-facing limb. T9.6 Pruned branch with surrounding rot at 4m on the north-west facing limb. T9.7 Deadwood branch on the main stem at 5m.						
T10 / SJ38609 49472	Pedunculate oak	Mature / Alive	12 / 0.7	Two features: T10.1 Stem cavity with an upward chamber (multi-chambered). At 0 to 1m in height. T10.2 Callus roll at 3m on a south facing limb.	M	Located in the north-western corner of the site. Surrounded by dense scrub to the north, east and south, with a hardstanding pathway to the adjacent west.	Y	Y	23 - 24	T10.1 was fully inspected from ground level.

T11 / SJ38591 49372	Multi-stemmed hawthorn	Mature / Alive	8 / 0.2	T11.1 Split between two stems with a central cavity at 1m on the easternmost stem.	L	Located within an area of dense scrub.	Y	Y	25 - 26	Could be fully inspected from ground level.
T12 / SJ38590 49371	Multi-stemmed hawthorn	Mature / Alive	8 / 0.3	T12.1 Cavity where two stems cross on the northernmost aspect at 1.5m extending inward 15cm.	L	Located within an area of dense scrub.	Y	Y	27	Could be fully inspected from ground level.
T13 / SJ38769 49276	Pedunculate oak	Mature / Alive	14 / 1.05	Three features: T13.1 Callus roll at 3m on an eastern protruding limb (upward facing). T13.2 Callus roll at 3m on the northern aspect running the length of the branch. T13.3 Knot hole at 3m on the western aspect.	M	Located within an area of dense scrub.	Y	Y	28 - 31	
T14 /	Pedunculate oak	Mature / Alive	16 / 1	Four features: T14.1 Branch rot at 6m on the	M	Located within an area of dense scrub and semi-improved neutral grassland.	Y	Y	32 - 35	

SJ38764 49222				southern aspect. x2 holes. T14.2 Callus roll at 7m on a NW facing limb. T14.3 Knot hole with rotten branch at 4m on the south-western aspect (downward facing). T14.4 Knot hole with inward rot at 8m on the western aspect of the main stem.						
T15 / SJ38763 49220	Multi-stemmed hawthorn	Mature / Alive	3 / 0.16	T15.1 Stem cavity at 0.5m. Upward facing and open at the base. Extending vertically 10cm.	L	Located in the understorey of T14.	Y	N	36	Could be fully inspected from ground level.
T16 / SJ38763 49219	Multi-stemmed hawthorn	Mature / Alive	4 / 0.16	T16.1 cavity in broken branch at 1.5m. Extending inward 20cm.	L	Located in the understorey of T14.	Y	N	37 - 38	Could be fully inspected from ground level.
T17 / SJ38773 49209	Pedunculate oak	Mature / Alive	13 / 0.4	Two features: T17.1 Callus roll at 4m on the eastern aspect. T17.2 Deadwood at 3m on the western aspect.	M	Located within an area of dense scrub.	Y	Y	39 - 40	Feature T17.2 could be fully inspected from ground level using binoculars and a high-powered torch and was found to be superficial and unsuitable to support roosting bats due to the absence of a sheltered cavity.

T18 / SJ38706 49193	Multi-stemmed hawthorn	Mature / Alive	7 / 0.2	T18.1 Branch crack at 2.5m on the south-eastern aspect	L	Located within an area of dense scrub.	Y	N	41 - 42	Could be fully inspected from ground level.
T19 / SJ38734 49171	Multi-stemmed hawthorn	Mature / Alive	8 / 0.3	T19.1 Weld on the main stem at 0.25m on the northern aspect. Extending inward 10cm.	L	Located within an area of dense scrub.	Y	N	43 - 44	Could be fully inspected from ground level.
T20 / SJ38766 49161	Hawthorn	Mature / Alive	6 / 0.2	T20.1 Stem cavity at 20cm on the southern aspect. Extending upward 15cm.	L	Located within an area of dense scrub.	Y	N	45 - 46	Could be fully inspected from ground level.
T21 / SJ38790 49177	Pedunculate oak	Mature / Alive	12 / 0.6	Seven features: T21.1 Stem cavity at 2m on the north-western aspect (beehive present within) T21.2 Callus roll at 2.5m on the western aspect with a protruding branch. T21.3 Deadwood branch with inward rot where it meets the stem at 5m on the northern aspect. T21.4 Branch cavity at 8m on eastern branch.	M	Located within a small pocket of semi-improved neutral grassland.	Y	Y	47 - 52	

				T21.5 Knot hole at 8.5m on the south-western aspect. T21.6 Knot hole with protruding deadwood (next to T21.5). T21.7 Broken branch with flaking bark and a tear out at 4m on a southern limb.						
T22 / SJ38651 49202	Multi-stemmed hawthorn	Mature / Alive	7 / 0.1	T22.1 Cavity where the tree branches overlap. Extending upward 5 to 10cm.	L	Located within an area of dense scrub.	Y	N	53 - 54	Could be fully inspected from ground level.
T23 / SJ38641 49267	Multi-stemmed hawthorn	Mature / Alive	5 / 0.15	T23.1 Cavity where branches overlap on the southern aspect. Extending upward 10cm.	L	Located within an area of dense scrub.	Y	N	55 - 56	Could be fully inspected from ground level.
T24 / SJ8605 49195	Crack willow	Mature / Alive	3 / 0.2	T24.1 Branch cavity at 0.5m on western aspect, extending approximately 20cm upwards.	M	Located within an area of dense scrub.	Y	N	57 - 58	Could be fully inspected from ground level.
T25 / SJ38548 49240	Multi-stemmed goat willow	Mature / Alive	6 / 0.2	T25.1 Weld at 2.5m on the eastern aspect. Extending inward 7cm.	L	Located within an area of dense scrub.	Y	Y	59 - 60	Could be fully inspected from ground level.
T26 /	Pedunculate oak	Mature / dead	9 / 0.5	Four features: T26.1 Stem cavity at 5m on	M	Located within an area of dense scrub.	N	N	61 - 63	The southern facing aspect was not viewable in its entirety.

SJ38980 49174				N aspect (Moderate). T26.2 Numerous cracks in the bark of main stem. T26.3 Broken branch with inward rot at 9m on a south-facing protruding limb. T26.4 Woodpecker hole at 8.5m (below T26.3) on the northern aspect of a South-facing protruding limb.						
T27 / SJ38894 49145	Goat willow	Mature / Alive	8 / 0.1	T27.1 Rot hole at 2m on the south-western aspect. Extending vertically 10cm.	L	Located within an area of dense scrub.	Y	N	64 - 65	Could be fully inspected from ground level.
T28 / SJ38833 49145	Pedunculate oak	Mature / Alive	11 / 0.6	Three features: T28.1 Wound within the rooting bark / broken branch at 3m on the north-eastern aspect. T28.2 Deadwood branch with inward rot at 4m on western aspect.	M	Located within an area of dense scrub.	Y	Y	66 - 68	

				T28.3 Broken branch wound at 4m on north-eastern aspect.						
T29 / SJ38817 49124	Pedunculate oak	Mature / Alive	8 / 0.2	T29.1 Broken branch at 4.5m on the western aspect.	L	Located within an area of dense scrub.	Y	Y	69	
T30 / SJ38820 49121	Hawthorn	Mature / Alive	9 / 0.3	T30.1 Cavity between a branch and the main stem at 1.5m on the south-eastern aspect. Extending downward 15cm.	L	Located within an area of dense scrub.	Y	Y	70	Could be fully inspected from ground level.
T31 / SJ38802 49096	Sycamore *Acer pseudoplatanus*	Mature / Alive	7 / 0.2	T31.1 Dense ivy cover.	L	Located within an area of dense scrub.	Y	Y	71	No PRFs observed, however the ivy may be obscuring other PRFs.
T32 / SJ38918 49044	Pedunculate oak	Mature / Alive	8 / 0.6	T32.1 Dense ivy cover on the main stem.	M	Located within an area of dense scrub.	Y	Y	72	No PRFs observed, however the ivy may be obscuring other PRFs.
T33 / SJ38913 49048	Crack willow	Mature / Alive	9 / 0.7	T33.1 Branch rot on the northern limb at 5.5m. Extending inward 5cm. T33.2 Tear-out at 3m on the southern aspect. Extending inward 5cm.	L	Located within an area of dense scrub.	Y	Y	73 - 76	

				T33.3 Callus roll at 4m on a south-eastern protruding limb. Extending inward 5cm.						
T34 / SJ37987 49515	Pedunculate oak	Mature / Alive	9 / 0.3	T34.1 Pruned branch split at 4m on the north-eastern aspect.	L	Located within an area of woodland surrounded by a mix of dense scrub and tall ruderal vegetation.	Y	Y	77 - 78	
T35 / SJ37991 49507	Pedunculate oak	Mature / Alive	10 / 0.7	Two features: T35.1 Deadwood branch at 1.5m on the south-western aspect, extending 6cm inwards. T35.2 Callus roll at 8m on the western aspect (moderate potential).	M	Located amongst a mixture of bramble scrub and tall ruderal.	Y	Y	79 - 80	
T36 / SJ37983 49480	Hawthorn	Mature / Alive	10 / 0.6	T36.1 Dense ivy cover.	L	Located within an area of dense scrub.	Y	Y	81	
T37 / SJ37977 49472	Multi-stemmed hawthorn	Mature / Alive	9 / 0.4	Four features: T37.1 Deadwood limb with numerous cavities on the north-eastern aspect (moderate potential). Extending upward 10cm.	M	Located within an area of dense scrub.	Y	N	82 - 85	

				T37.2 Deadwood at 2.5m on the south-western facing limb (M). T37.3 Stem cavity at 0.5m on the southernmost limb (hollow stem). Extending inward 30cm. T37.4 Broken stem at 4.5m on the easternmost limb.						
T38 / SJ37960 49479	Goat willow	Mature / Alive	10 / 0.3	T38.1 Broken branch at 4m on the north-western aspect.	L	Located within an area of dense scrub.	Y	Y	87 - 88	
T39 / SJ37985 49476	Crack willow	Mature / Alive	12 / 0.6	T39.1 Deadwood limb with flaking bark at 3m on the western aspect.	L	Located within an area of dense scrub.	Y	Y	89 - 90	
T40 / SJ38029 49456	Goat willow	Mature / Alive	10 / 0.15	T40.1 Rot hole at 3.5m on the north-western aspect. Extending inward 5cm.	L	Located within an area of dense scrub.	Y	Y	91	
T41 / SJ38018 49443	Pedunculate oak	Mature / Alive	12 / 0.6	T41.1 Pruned branch with inward rot at both the top and bottom at 6m on the northern aspect.	L	Located within an area of dense scrub.	N	Y	92	

				Extending vertically 5cm. T41.2 deadwood branch with a single knot hole at 1.5m on the eastern aspect. Extending vertically 5cm.						
T42 / SJ38029 49448	Goat willow	Mature / Alive	12 / 0.4	T42.1 Rot hole protruding upward 20cm on the western aspect (moderate potential). Extending upward 20cm.	M	Located within an area of dense scrub.	Y	Y	93 - 94	Could be fully inspected from ground level.
T43 / SJ37994 49456	Goat willow	Mature / Dead	7 / 0.5	Nine features: T43.1 Tear out at 1.5m on a south-western limb. Extending inward 10cm. T43.2 Knot hole main limb at 2m on the south-western aspect. Extending upward 20cm. T43.3 Knot hole at 2.2m on the main stem. Extending downward 15cm and upward 7cm.	M	Located within an area of dense scrub.	Y	Y	95 - 104	Could be fully inspected from ground level.

				T43.4 Knot hole above T43.3 at 3m on a south-western limb facing north-west. T43.5 Tear out at 2.5m on a western protruding limb. T43.6 Callus roll with inward rot at 4m on a north-western limb. T43.7 Rot hole with a deadwood limb at 2.5m on the north-western aspect. T43.8 Knot hole at 0.75m on a southern facing stem. Extending inward 20cm. T43.9 X2 callus rolls on the north-western limb at 4m.					
T44 / SJ38031 49459	Goat willow	Mature / Alive	12 / 0.6	Two features: T44.1 Rot hole at 2m on the north-western aspect beside a pruned branch (moderate potential).	M	Located within an area of dense scrub.	Y	Y	106 - 108	

				T44.2 x2 woodpecker holes at 5m on a northern limb (moderate potential).						
T45 / SJ38034 49456	Goat willow	Mature / Alive	13 / 0.3	Four features: T45.1 Woodpecker hole at 11m on a western limb (moderate potential). T45.2 Broken branch at 7m on the north-western aspect. T45.3 Rot hole at 4m on the eastern aspect of the main stem. T45.4 Tear out at 7m on the eastern aspect.	M	Located within an area of dense scrub.	Y	Y	109 - 113	
T46 / SJ38034 49456	Goat willow	Mature / Alive	12 / 0.5	Five features: T46.1 Callus roll at 4.5m on the northern aspect. T46.2 Rot hole at 1m on eastern aspect. Extending upward 5cm. T46.3 Broken branch at 4.5m	M	Located within an area of dense scrub.	Y	Y	114 - 118	

				on north-western aspect. T43.4 Upward facing callus roll at 4m on north-eastern limb. T46.5 Callus roll with inward rot at 4m on southern limb.						
T47 / SJ38039 49453	Goat willow	Mature / Alive	8 / 0.2	T47.1 Large stem cavity at 0.5m on the south-eastern aspect, extending upward 1m.	M	Located within an area of dense scrub.	Y	Y	119 - 120	Could be fully inspected from ground level.
T48 / SJ38049 49454	Pedunculate oak	Mature / Alive	12 / 0.35	T48.1 Callus roll at 5m on a north-eastern limb extending upward. Extending inward 10cm.	L	Located within an area of dense scrub.	Y	Y	121	Could be fully inspected from ground level.
T49 / SJ38042 49450	Goat willow	Mature / Alive	9 / 0.3	Two features: T49.1 Rot hole at 2.5m on the north-western aspect. T49.2 Rot hole at 5m on the north-eastern aspect (downward facing).	M	Located within an area of dense scrub.	Y	Y	122 - 123	
T50 /	Goat willow (multi-stem)	Mature / Alive	11 / 50	Five features: T50.1 Rot hole at 1.5m on main	M	Located within an area of dense scrub.	Y	Y	124 - 128	Could be fully inspected from ground level.

SJ38052 49453				stem (west facing). Extending upward 15cm. T50.2 Callus roll with inward rot at 2m on southern stem. Extending upward 10cm. T50.3 Rot hole on broken branch at 1.5m on eastern limb. Extending downward 20cm. T50.4 Broken branch at 1.9m (same limb as T50.3). Extending vertically 5 to 10cm. T50.5 Callus roll with inward rot at 1.9m on south-eastern branch (moderate potential). Extending upward 3cm.						
T51 / SJ38045 49444	Goat willow	Mature / Alive	10 / 0.3	T51.1 Woodpecker hole at 3m on north-western aspect (moderate potential).	M	Located within an area of dense scrub.	Y	Y	129	
T52 / SJ38042	Goat willow	Mature / Alive	11 / 0.2	T52.1 Tear-out wound on the eastern aspect at 1.5m	L	Located within an area of dense scrub.	Y	Y	130	Could be fully inspected from ground level.

49450				extending upward 5cm.						
T53 / SJ38064 49443	Goat willow	Mature / Alive	10 / 0.2	T53.1 Tear out with inward rot at 3m on the north-eastern aspect of the main stem.	M	Located within an area of dense scrub.	Y	Y	131	
T54 / SJ38056 49442	Goat willow	Mature / Alive	11 / 0.3	Two features: T54.1 Stem cavity at 1.5m on the eastern aspect. Extending upward 15cm. T54.2 Larger cavity below T54,1 at 1m (1m in length)	M	Located within an area of dense scrub.	Y	Y	132 - 133	
T55 / SJ38056 49441	Goat willow	Mature / Alive		T55.1 Callus roll on main stem on the north facing aspect measuring 5cm x 5cm.	M	Located within an area of dense scrub.	Y	Y	134	
T56 / SJ38065 49431	Goat willow	Mature / Alive	10 / 0.6	T56.1 Cracked branch at 0.5m on a south-eastern facing limb. Measuring 0.7cm x 5cm.	L	Located within an area of dense scrub.	Y	Y	135	Could be fully inspected from ground level.
T57 / SJ38076 49441	Goat willow	Mature / Alive	12 / 0.5	T57.1 Callus roll at 2m on the northern aspect. Extending inward 10cm.	L	Located within an area of dense scrub.	Y	Y	136	Could be fully inspected from ground level.
T58 / SJ38076 49464	Goat willow	Mature / Alive	12 / 0.3	T58.1 Stem cavity at 30cm on the western aspect measuring 5 x	L	Located within an area of dense scrub.	Y	Y	137	Could be fully inspected from ground level.

				5cm and extending 10cm inward.						
T59 / SJ38076 49464	Multi-stemmed goat willow	Mature / Alive	11 / 0.6	T59.1 Branch crack at 0.5m on a south-eastern branch. Measuring 1m x 5cm wide Extending inward 5 to 10cm.	L	Located within an area of dense scrub.	Y	Y	138	Could be fully inspected from ground level.
T60 / SJ38089 49468	Multi-stemmed goat willow	Mature / Alive	9 / 0.45	T60.1 Branch rot hole on a south-eastern limb at 4m. Measuring 10 x 10cm at the entrance. Extending inward <5cm.	L	Located within an area of dense scrub.	Y	Y	140	Could be fully inspected from ground level.
T61 / SJ38084 49468	Goat willow	Mature / Alive	10 / 0.3	Two features: T61.1 Woodpecker hole at 5m on the eastern aspect. T61.2 Woodpecker hole at 5m on the north-eastern aspect of the main stem.	M	Located within an area of dense scrub.	Y	Y	141 - 142	
T62 / SJ38055 49487	Goat willow	Mature / Alive	12 / 0.3	T62.1 Dense ivy cover on the main stem.	L	Located within an area of dense scrub.	Y	Y	143	

T63 / SJ38036 49488	Pedunculate oak	Mature / Alive	12 / 0.4	T63.1 Dense ivy cover on the main stem.	L	Located within an area of dense scrub.	Y	Y	144	
G1 / SJ37973 49456	Goat willows	Mature / Alive	5 / 0.3	G1.1 Dense ivy cover on the main stems of all trees.	L	Located within an area of dense scrub.	Y	Y	86	
G2 / SJ38027 49506	Hawthorn	Mature / Alive	8 / 0.2	G2.1 Dense ivy cover.	L	Located within an area of dense scrub.	Y	Y	105	A group of seven trees.
G3 / SJ39091 49473	Goat willows	Mature / Alive	1 / 0.2	G3.1 Dense ivy cover.	L	Located within an area of dense scrub.	Y	Y	139	A group of fourteen trees
G4 / SJ38103 49381	Hawthorn	Mature / Alive	5 / 0.2	G4.1 Dense ivy cover.	L	Located within an area of dense scrub.	Y	Y		
T64 / SJ38533 49481	Pedunculate oak	Mature / Alive	13 / 0.8	T64.1 Dense ivy cover on the main stem.	L	Located within an area of dense scrub.	Y	Y	145	
T65 / SJ38535 49487	Goat willow	Semi-mature / Alive	8 / 0.3	Rot hole at 1.5m high on the southern aspect of the main stem.	L	Located within an area of dense scrub.	Y	Y		Cavity is very shallow and could be fully inspected from ground level.

Appendix 3 – Photographs