Retford Circular Economy Project Environmental Statement Addendum – Volume 3 Technical Appendices

Technical Appendix 8.8: Bat Roost Assessment

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ECOLOGICAL CONSULTANTS

Tree Climbing Survey
Retford Circular Economy Project

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Written by	Charlotte Haylock BSc (Hons) Senior Ecologist
Checked by	Jade Bateman MSc BSc (Hons) Ecologist
Approved by	Jessica Eades BSc (Hons) MCIEEM Technical Director

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Peak Ecology Limited
Arden House
Deepdale Business Park
Bakewell
Derbyshire
DE45 1GT
01629 812511

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1 INTRODUCTION

1.1 Scope of Report

This report has been prepared by Peak Ecology Ltd on behalf of ERM. It provides the results of an aerial tree climbing inspection of 19 trees with suitability for roosting bats, at a site north of Retford, Nottinghamshire. Details of potential roost features were provided following a ground-level tree inspection (GLTA) carried out by Arcus, with the locations of trees shown in Figure 1, below.

The survey was undertaken in accordance with the Bat Conservation Trust (BCT) industry standard guidance (Collins (ed), 2016).

1.2 Site Description

The site comprises an area covering approximately 106ha on the northern outskirts of Retford, Nottinghamshire (central grid reference: SK 69087 84349). The site is made up of a series of fields, comprising arable crops and grazed pasture, with wooded margins and areas of dense scrub.

The site is shown in Appendix A, with the locations of trees with potential roost features marked with a "+".

1.3 Planning Context and Legislation

All British bat species are European Protected Species (EPS) under The Conservation of Habitats and Species Regulations 2017 (as amended). They are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are protected by Parts 4(b), 4(c) and 5 of Section 9 of the Act.

In net effect, it is an offence to:

- Deliberately capture, injure or kill bats;
- Intentionally or recklessly disturb bats in a place of shelter (roost);
- Intentionally or recklessly damage, destroy or obscure access to a breeding site or resting place (roost); and/or
- Possess, control, transport, sell or exchange a bat or any part of a bat, unless acquired legally.

NB. As bats use roosts at different times of year and typically return to the same roosts annually, it is a legal opinion that a roost is protected whether bats are in occupancy at the time or not.

1.4 Methodology

The suitability of the trees was assessed for use by roosting bats based on best practice guidelines published by the Bat Conservation Trust (Collins (ed), 2016)[1]. The survey was carried out over two days, on the 28th July and 15th August 2023, undertaken by a team of two ecologists on each survey occasion as is required for health and safety. Surveyors were Jessica Eades, Charlotte Haylock and Helen Hamilton, all of whom are qualified under CS38 Tree Climbing and Aerial Rescue. Jessica and Helen are both qualified to use a Natural England Class II licence for surveying bats. Jessica is also registered to use a Natural England Barn Owl CL29 Class Licence. Surveyors are appropriately qualified for the survey based on the CIEEM competency framework (CIEEM, 2013)[2].

The suitability of each tree was initially assessed from the ground, with a risk assessment also carried out to identify any hazards associated with the tree or surrounding habitat. This assessment aims to identify the safest method of accessing the tree, or if the features could be surveyed from the ground.

Where appropriate, aerial roped techniques were used to gain closer access to identified features; with the location and description of any features recorded, and any evidence of bat presence noted such as droppings or feeding remains. Binoculars, high-powered torches and endoscopes were used, where required, to facilitate a more detailed inspection of individual features.

Based on the number, location and type of potential roost features, trees were categorised as having low, moderate or high bat roosting potential (BRP), or confirmed roost where direct evidence of bats was found. Where features were found to be unsuitable, these were downgraded to negligible potential. Evaluation of roost potential is subjective and relies on the professional judgment of the surveyor; however, the table below provides a useful guide to how this is informed.

Any evidence of nesting birds was also recorded during the survey.

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

[2] CIEEM (2013) *Competencies for Species Surveys in Britain and Ireland: Overview.* Chartered Institute of Ecology and Environmental Management, Winchester.

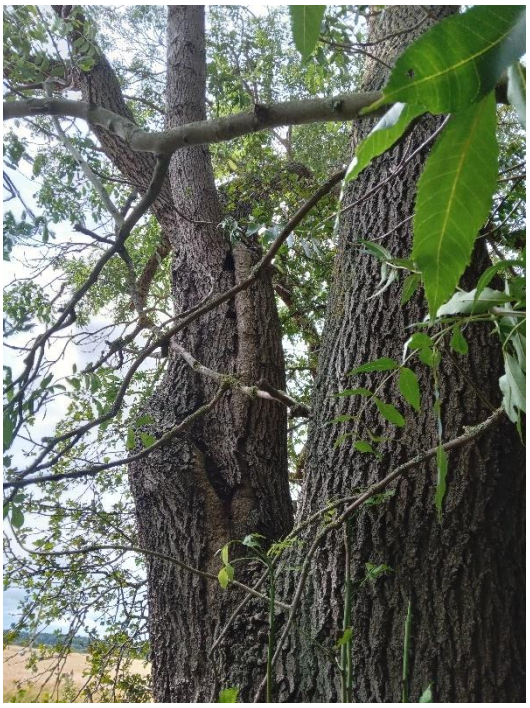
Table 1: Examples of characteristics that inform assessment of roost potential

Status	Typical characteristics
Negligible potential	• Immature trees • Lack of access points for bats • Situated within very poor quality foraging habitat • High levels of external lighting
Low potential	• Small number of minor hole / crevice features suitable for opportunistic roosting • Features obscured by dense cobwebs • Unlikely to support breeding or hibernating bats • Situated within poor quality foraging habitat
Moderate potential	• One or more hole / crevice features suitable for roosting • Trees with small fissures and crevices in dead wood suitable for day roosting • Situated within or near to moderate/good quality foraging habitat
High potential	• Mature or veteran trees • Trees with woodpecker holes or deep fissures and crevices in dead wood • Features suitable for large numbers of bats and/or several different species • Low level of disturbance by humans • Little / no external lighting • Situated within good quality foraging habitat
Confirmed Roost	• Bats seen or heard within the roost feature during the survey • Bat droppings, particularly if piled rather than scattered • Feeding remains such as moth wings • Existing record of roost at that location

2 RESULTS

2.1 Potential Roost Feature Assessment

Table 2: Summary of Findings

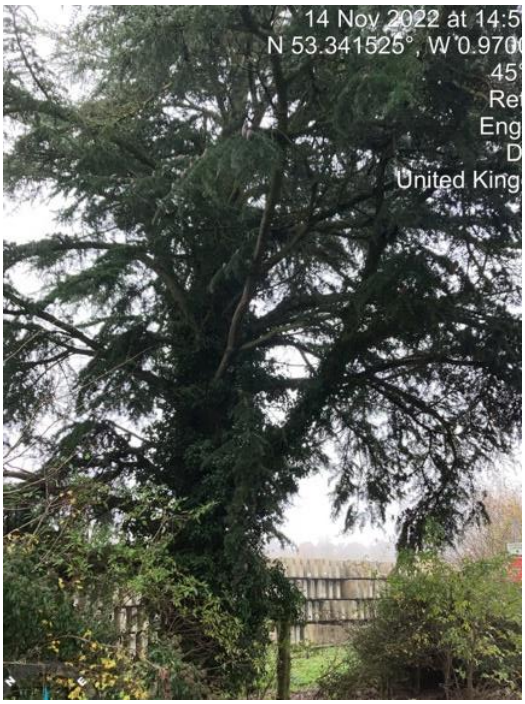
Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 5 SK6973185109	Birch tree with no features suitable for roosting bats. Barn owl box on north eastern aspect, accessed by ladder. Dead barn owl chick within box considered to be 25-43 days old; small to medium number of feathers on tail, flight feathers emerged from pins. Confirmed barn owl breeding from 2023 season. Two wood pigeons also using box. Previous BRP: Moderate **Updated BRP: Negligible**	
Tree 6 SK6850883435	Ash tree with knot holes and tear-out feature on western and northern-eastern aspects, 2-3m high, accessed by ladder and inspected using an endoscope. Features largely superficial and not leading to notable cavities. Blue tit feathers present in larger of two cavities associated with tear-out, but no evidence of nesting. Previous BRP: Moderate **Updated BRP: Low**	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 7 SK6853983474	Ash tree with dense ivy cladding on entire tree. Spindly structure and not considered safe to climb due to limited visibility of anchor points, typical brittle nature of ash trees and poor condition of surrounding trees of a similar species/ structure. No features were identified from the ground; however, full inspection not possible therefore precautionary low suitability maintained. Previous BRP: Low **Updated BRP: Low**	
Tree 10 SK6880883928	Multi-stem willow with all limbs decaying and rotten. Not able to climb or inspect using ladder due to fragility of tree. Most limbs hollow and deteriorating rapidly, creating a very limited number of exposed features. Previous BRP: Low **Updated BRP: Low**	 

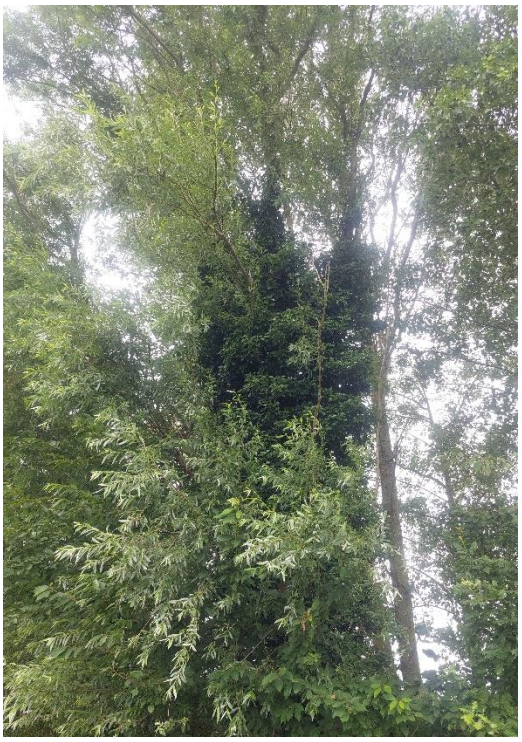
Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 11 SK6878184203	Birch tree with historic wound approximately 3m high on south-eastern aspect, that has since healed, and been almost completely sealed by new growth. No other features present, therefore no aerial inspection required. Previous BRP: Low **Updated BRP: Negligible**	
Tree 12 SK6854183912	Willow tree with two knot holes at 1m and 2m high, on the western aspect. Features inspected from the ground using an endoscope; neither formed a significant cavity and were not considered to have any suitability for roosting bats. Tear-out on upper limb was superficial and offered no roosting opportunity. Previous BRP: Moderate **Updated BRP: Negligible**	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 13 SK6854583439	Oak tree with dense ivy cladding on main stem and throughout canopy. Ivy creates a cluttered access route for aerial assessment; not possible for surveyors to secure a safe top rope close to main stem. Features visible from the ground include tear-outs on two branches, facing north-west and south-east, creating horizontal cracks. Features extend outwards beyond the ivy therefore allowing uncluttered access for bats; however, roost suitability of features not thoroughly examined. Features too high in tree to assess using ladder. Previous BRP: Moderate **Updated BRP: Moderate**	
Tree 14 SK6852983438	Oak tree with fire-damaged lower limbs. Some minor decay at base of tree, but not significant. Tree accessed using ropes, but only via main stem due to dead limbs. Features examined included peeling bark and cracks present on lower limbs 4-5m high, south and south-east facing; most of which were superficial or filled with woodlouse. Some upward-facing splits in deadwood present, likely a result of squirrel damage, also superficial. Previous BRP: Low **Updated BRP: Low**	   

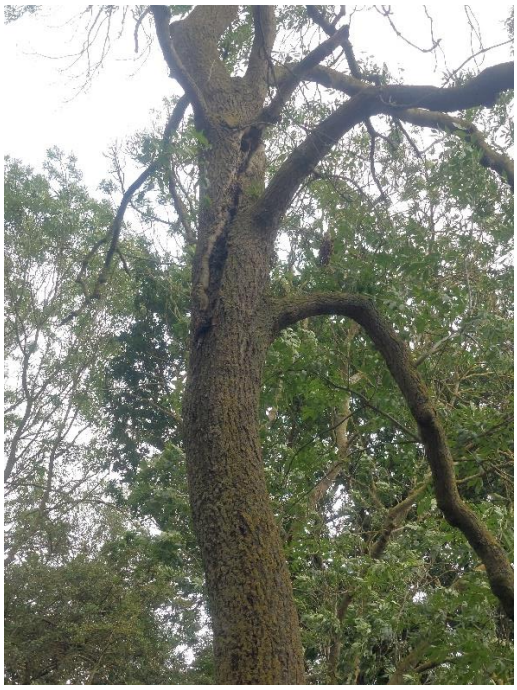
Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 15 SK6853983443	Oak tree with dense ivy cladding. Ivy creates a cluttered access route for aerial assessment; not possible for surveyors to secure a safe top rope close to main stem. No features other than the ivy itself were identified from the ground; however, full inspection not possible therefore precautionary low suitability maintained. Previous BRP: Low **Updated BRP: Low**	No photo taken.
Tree 16 SK6858283380	Oak tree with two knot holes on western and south-western aspect of main stem, 4m and 5m high. The feature at 4m was shallow and exposed, heavily cobwebbed and full of ants. The feature at 5m did not extend a sufficient depth into the stem to create a suitable feature. Tree was climbed using ropes and inspected with an endoscope. Previous BRP: Moderate **Updated BRP: Low**	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 17 SK6867383236	Atlas cedar with dense ivy cladding. Not climbed due to close proximity to road, and frequent trucks passing associated with adjacent concrete plant. A cedar of this size and condition was considered unlikely to possess any notable decay features, some pruned branches were present; however, these were cleanly cut with no rot. The ivy did not appear mature enough to form plating; however, it was not possible to fully assess the entirety of the tree from the ground due to the dense canopy. Previous BRP: Low **Updated BRP: Low**	
Tree 18 SK6908484079	Oak tree, almost entirely dead, with a knot hole on western aspect and split bark at the upper extent of the eastern aspect of main stem. Not climbed due to lack of anchor points and presence of honey bees in upper feature. Knot hole at 2m high inspected with endoscope; feature comprised a domed cavity descending approximately 30cm down the stem, with an internal diameter of 8cm, and separate from the higher feature. Relatively open and exposed entrance. Bird nesting material was present at the base of the cavity. Previous BRP: Low **Updated BRP: Low**	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 19 SK6927684704	Previously recorded as ash tree with branch tear-out. No ash tree with any such feature was present in this location during the survey. Two semi-mature ash trees present in close proximity to grid reference; however, neither presented any potential roost features. No stumps present to indicate removal of trees, or evidence of fallen trees. Photo reference of closest existing ash tree to given location. Previous BRP: Low **Updated BRP: Negligible (assigned to two semi-mature ash present)**	
Tree 20 SK6948184823	Dead standing tree, likely willow, not climbed due to brittle nature of remaining branches. Lifted bark throughout tree; however, all in instances features created are superficial and do not lead to any cavities suitable for roosting. Due to the condition of the tree, features are likely decaying rapidly and have become too open and exposed. Previous BRP: Low **Updated BRP: Negligible** NB. A number of similar willow trees were present along this field boundary.	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 21 SK6923585072	Willow with dense ivy cladding and cluttered canopy. No side branches of a sufficient diameter suitable for use as anchor points present within tree, therefore tree not climbed. Ivy stems not mature enough to create a feature in their own right, and the tree appears to be of a size and age where damage/ decay features are unlikely to be present beneath the ivy. Previous BRP: Low **Updated BRP: Negligible**	
Tree 22 SK6866583916	Three poplar trees with dense ivy cladding. Typical poplar growth form with spindly, brittle limbs. No side branches of a sufficient diameter suitable for use as anchor points present within each tree, therefore trees not climbed. Ivy stems not mature enough to create a feature in their own right, and based on the species of the trees, their age and condition, and the lack of potential roost features on similar trees nearby, it was considered unlikely the three trees possessed suitable features beneath the ivy. Previous BRP: Low **Updated BRP: Negligible**	

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
Tree 23 SK6854983618	Oak tree with multiple potential roost features considered suitable for small numbers or individual bats, occasionally. Due to the close proximity to power lines to the east of the tree, the use of throw lines was considered appropriate following the risk assessment, therefore the tree was accessed using a ladder and the climber secured with ropes. Features included an upward-facing lightning strike present on western limb, 5m high, with flaking bark and rolled edges, but considered shallow and exposed. Large knot hole present on the western aspect at 5m; damp and rotted, and filled with debris and slugs. Lightning strike feature with rotted wood on the eastern aspect at 6m; 50cm in length but shallow and no notable cavity present. Rot hole on the northern aspect of a southern limb at 4m high; 40cm in diameter with squirrel nesting material. Rot hole on the western aspect of a southern limb at 4m high; less than 5cm internal diameter and full of woodlice. Knot hole on the eastern aspect of a northern limb at 5m high; an internal height of 18cm but descends into sludge. Previous BRP: Moderate **Updated BRP: Moderate**	   

Feature ID / Grid Ref.	Description of features and summary of assessment	Photo
New tree SK6851983451	Ash tree with significant deadwood in canopy and woodpecker holes in main stem. Due to presence of ash die-back and evident decay in stem, tree was not considered safe to climb. Not previously mapped. **BRP: Low**	

3 CONCLUSIONS

3.1 Evaluation and Recommendations

No evidence of roosting bats was identified during the survey and no bats were found to be roosting within any of the features searched during the aerial assessment. It cannot, however, be fully discounted that bats may roost within any of the potential roost features detailed in Section 2 in the future.

It is an offence under the legislation to destroy a potential roost unless suitable survey effort has been undertaken to confirm presence or likely absence of roosting bats. Individual bats that may be present within tree features (day roosts) are known to frequent several different tree roosts on different nights, often showing transient patterns in their roosting behaviour.

In line with the Bat Conservation Trust guidelines, it is recommended that further activity surveys are undertaken on trees with retained bat roosting suitability, as per the table below.

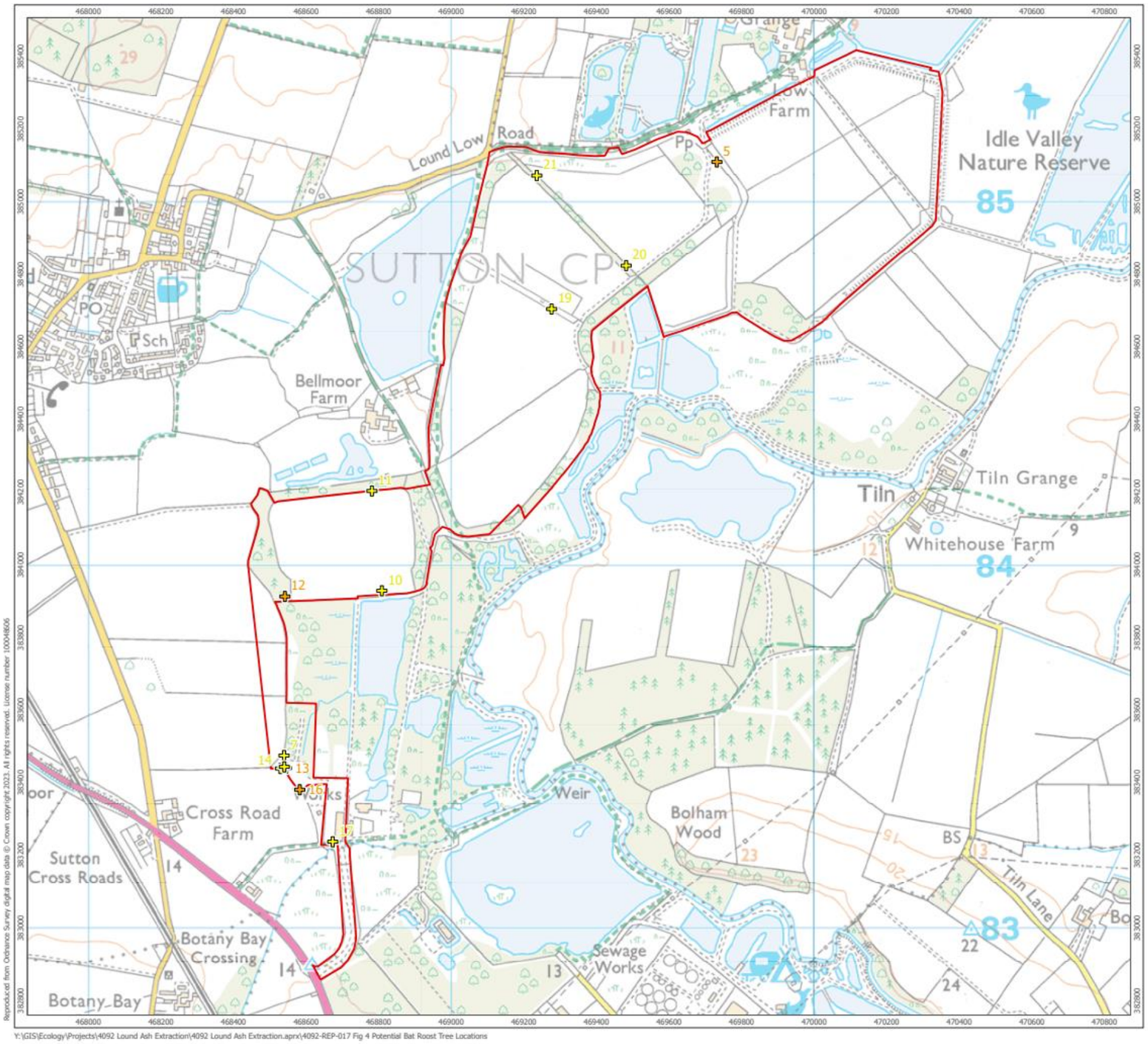
Table 3: Further Survey Effort

Assessed Roost Status	Minimum Survey Effort for Trees
Negligible potential	No further survey
Low potential	No further survey (Tree to be soft-felled; carefully lowering each section containing any potential roost feature, to be left grounded with the feature facing upwards, for at least 24 hrs to allow any bats to vacate)
Moderate potential	Two survey visits (One dusk and one dawn survey)
High potential / confirmed roost	Three survey visits (At least one dusk and one dawn)

If works to trees are delayed for over a year since the date of the latest assessment, additional surveys will be required to reassess the features, which may develop into more suitable roost features over time.

APPENDIX A : Site Plan

Figure 1: "Potential Bat Roost Tree Locations" (Arcus)



ERM has over 160 offices across more 40 countries and territories worldwide

ERM's York Office
1C Swinegate Court East
3 Swinegate
York
YO1 8AJ

T: +44 1904 715470

www.erm.com