

Appendix 11.12: Bat Tree Roost Survey Technical Appendix



THE
ENVIRONMENT
PARTNERSHIP



LAND NORTH OF BRYN LANE WREXHAM BAT TREE ROOST SURVEY REPORT

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Bat Ground Level Tree Assessment Results G9134.015.1-4 A

Executive Summary

1. TEP was commissioned by Net World Sports in June 2023 to undertake nocturnal surveys of trees assessed as having roosting potential for bats at Land North of Bryn Lane, Wrexham (hereby referred to as "the site"). Ecological surveys are required to inform an Environmental Statement that will inform proposals for a commercial development.
2. The Proposed Scheme is in the form of a hybrid planning application. The detailed component of the proposed development comprises:
 - *Demolition of all existing buildings, site clearance and preparation works, including removal of vegetation and reprofiling of topsoil, where necessary;*
 - *Construction of a new warehouse unit (53.95 m above ordnance datum (AOD)), providing 33,595 sqm gross external area (GEA) of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and/or B8 (storage & distribution) uses (referred to as Unit 2);*
 - *Construction of eight new smaller to medium size industrial units (ranging between up to 45.20 m AOD and 52.98 m AOD; referred to as Units 3-7; and 14-16), providing a total of 29,659 sqm GEA of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and/or B8 (storage & distribution) uses;*
 - *Access and parking provision, including new access junctions, internal roads, service yards and car and HGV parking. Two new junctions are proposed providing vehicular access, as well as cycle and pedestrian access, from Bryn Lane/Industrial Estate Road with an additional access road for a substation. 592 car parking spaces (32 accessible spaces) and 138 HGV spaces are proposed within the detailed component;*
 - *Retention and enhancements of some existing on-site green spaces and provision of landscaping around the detailed component of the application site; and*
 - *Implementation of drainage/attenuation measures and ancillary infrastructure, including substation and pumping station.*
3. The outline component of the proposed development comprises:
 - *Construction of new buildings, up to 59.80 m AOD (28.5 m above ground level) in height, collectively providing up to 72,635 sqm GEA of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses, as well as potential ancillary retail/drive thru facilities, a hotel and a petrol filling station (A1, A3, C1 or sui generis). The overall quantum of A1, A3, C1 and/or sui generis use floorspace would not exceed 16,150sqm GEA;*
 - *Access and parking provision, including internal roads, service yards and car and HGV parking. Up to 908 car parking spaces and up to 138 HGV trailer spaces and HGV lorry spaces are proposed across the application site;*
 - *Retention and enhancements of some existing on-site green spaces and provision of landscaping around the application site; and*

- *Implementation of drainage/attenuation measures.*
4. Of those trees likely to require removal to facilitate the proposed development in the detailed component, five (T99 G10.4, T69, T70, T75) were identified with high or moderate roosting potential during the ground level tree assessment (GLTA) and aerial assessment surveys carried out by TEP in 2022 (TEP Ref. 9134.005 V4.0).
 5. In line with the recommendations of the GLTA three nocturnal surveys were undertaken of tree T99, two nocturnal surveys were undertaken of trees T69, T70, and T75, and one nocturnal survey was conducted of G10.4 which was found to be unsuitable for roosting bats during the first nocturnal survey due to dense vegetation cover blocking the only potential roosting feature.
 6. No confirmed roosts were recorded during any of the nocturnal surveys on any of the trees, therefore no European Protected Species License (EPSL) is required. The findings of this survey are valid for two survey seasons from date of the last nocturnal survey.
 7. Further surveys will also be required of any trees with roosting potential that require removal to facilitate the proposed development in the outline component, prior to a reserved matters application.
 8. Trees unavoidably impacted by development proposals will be subject to a Precautionary Working Method Statement (PWMS) during removal or pruning works.
 9. A Sensitive Lighting Design should be implemented as part of the scheme to avoid indirect impacts of lighting on the commuting and foraging bat population. An appropriate lighting scheme will be secured by way of an appropriately worded planning condition.
 10. Bat boxes will be included within the development to further opportunities on the site for roosting bats. These can be installed within new buildings or on mature retained trees around the site. The locations and specification of proposed bat boxes can be secured by way of an appropriately worded planning condition.
 11. The results of the survey found the hedgerows on the site proved to be the habitats of most value for commuting and foraging bats. The impacts of the proposed development and proposed mitigation are assessed in the accompanying ES Chapter 11: Biodiversity (TEP Report Ref: 9134.011).

1.0 Introduction

1.1 TEP was commissioned in June 2023 by Net World Sports to undertake nocturnal bat tree surveys at Land North of Bryn Lane, Wrexham (hereby referred to as "the site"). Surveys were required to inform an Environmental Statement (ES) that will inform proposals for a commercial development.

1.2 The Proposed Scheme is in the form of a hybrid planning application. The detailed component of the proposed development comprises:

- *Demolition of all existing buildings, site clearance and preparation works, including removal of vegetation and reprofiling of topsoil, where necessary;*
- *Construction of a new warehouse unit (53.95 m above ordnance datum (AOD)), providing 33,595 sqm gross external area (GEA) of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and/or B8 (storage & distribution) uses (referred to as Unit 2);*
- *Construction of eight new smaller to medium size industrial units (ranging between up to 45.20 m AOD and 52.98 m AOD; referred to as Units 3-7; and 14-16), providing a total of 29,659 sqm GEA of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and/or B8 (storage & distribution) uses;*
- *Access and parking provision, including new access junctions, internal roads, service yards and car and HGV parking. Two new junctions are proposed providing vehicular access, as well as cycle and pedestrian access, from Bryn Lane/Industrial Estate Road with an additional access road for a substation. 592 car parking spaces (32 accessible spaces) and 138 HGV spaces are proposed within the detailed component;*
- *Retention and enhancements of some existing on-site green spaces and provision of landscaping around the detailed component of the application site; and*
- *Implementation of drainage/attenuation measures and ancillary infrastructure, including substation and pumping station.*

1.3 The outline component of the proposed development comprises:

- *Construction of new buildings, up to 59.80 m AOD (28.5 m above ground level) in height, collectively providing up to 72,635 sqm GEA of floorspace for B1c (light industry appropriate in a residential area), B2 (general industrial) and B8 (storage & distribution) uses, as well as potential ancillary retail/drive thru facilities, a hotel and a petrol filling station (A1, A3, C1 or sui generis). The overall quantum of A1, A3, C1 and/or sui generis use floorspace would not exceed 16,150sqm GEA;*
- *Access and parking provision, including internal roads, service yards and car and HGV parking. Up to 908 car parking spaces and up to 138 HGV trailer spaces and HGV lorry spaces are proposed across the application site;*
- *Retention and enhancements of some existing on-site green spaces and provision of landscaping around the application site; and*
- *Implementation of drainage/attenuation measures.*

- 1.1 Trees with bat roosting potential were identified in the ground level tree assessment (GLTA) and aerial assessment carried out by TEP in 2022 (Appendix 11.7 of the ES Chapter 11 : Biodiversity - TEP Report Ref: 9134.005 V4.0). The 2023 tree roost surveys focused on those trees (T99 G10.4, T69, T70, T75) identified as likely to require removal in the detailed component only, based upon the latest cut and fill plan (reference T_21_2486-52-01) issued on 15th May 2023. Surveys of trees in the outline component will be carried out prior to a reserved matters submission when the exact extent of tree removal is known.

Site Description

- 1.2 The site (central grid reference SJ 38614 51101) is approximately 37.21 ha in size and is located to the east of Wrexham in North Wales.
- 1.3 The site is bounded to the south by Bryn Lane and Wrexham Industrial Estate, to the north by Francis Lane, to the west by both Industrial Estate Road and Hugmore Lane (with associated residential properties), and to the east by open agricultural fields. The wider area predominantly comprises urban development to the west associated with Wrexham town centre, with open countryside present to the north and east and the industrial estate to the south.
- 1.4 The extent of the area covered by the ecological assessment is represented by the red line boundary in the site location plan (Figure 1).

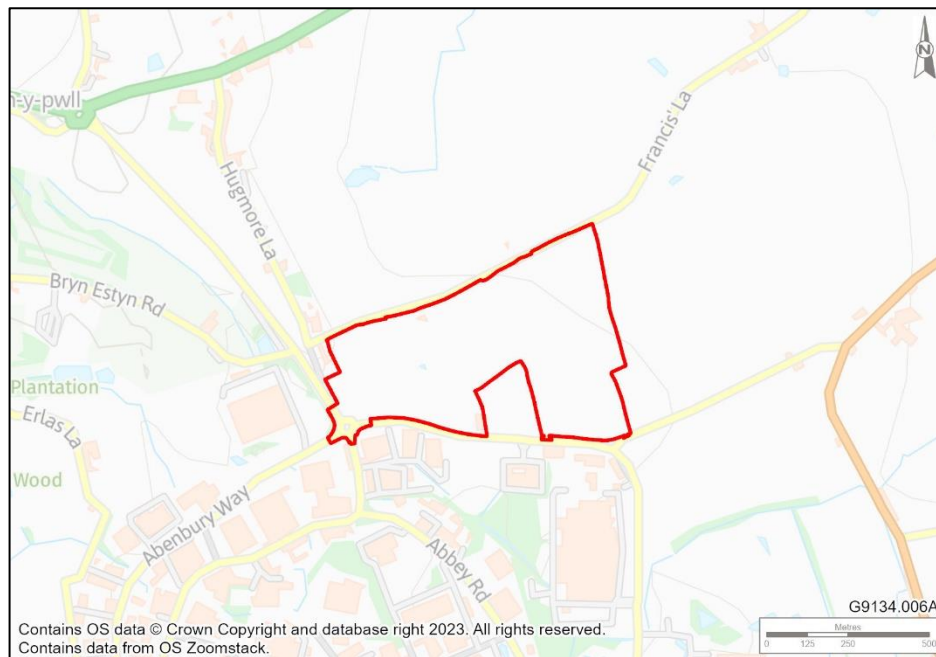


Figure 1: Site location within the context of the wider landscape.

Legislation

- 1.5 Bat species and their roost habitat are afforded full protection by the following legislation:

Conservation of Habitats and Species Regulations 2017, as amended by the Conservation of Habitats and Species (Amendments) (EU Exit) Regulations 2019

- 1.6 Species listed under Schedule 2 of the Conservation Regulations 2017¹, referred to as 'European Protected Species' (EPS), including their breeding sites and resting places, are protected under Regulations 42 and 43. This makes it illegal to:
- Deliberately capture, injure or kill any such animal;
 - Deliberately disturb such an animal;
 - Deliberately take or destroy the eggs of such an animal; and
 - Damage or destroy a breeding site or resting place of such an animal.
- 1.7 Under Regulation 55 of the Conservation Regulations 2017 (as amended), licences can be granted by Natural Resources Wales in respect of development to permit activities that would otherwise be unlawful, providing that the following 'three tests' are passed, namely:
- The development is for reasons of overriding public interest (or other purpose prescribed by Regulation 55(2));
 - There is no satisfactory alternative (Regulation 55(9)(a)); and
 - The action authorised will not be detrimental to the maintenance of the population of the site concerned at a favourable conservation status in their natural range (Regulation 55(9)(b)).
- 1.8 Under Regulation 9(1) of the Conservation Regulations 2017 (as amended), competent authorities '*must exercise their functions which are relevant to nature conservation... so as to secure compliance with the requirements of the Directives*'. Regulation 9(3) requires a competent authority, in exercising any of its function, to '*have regard to the requirements of the Directives so far as they be affected by the exercise of those functions*.' Local planning authorities must therefore consider the above three 'tests' when determining if planning permission should be granted for developments likely to cause an offence under the Conservation Regulations.

¹ Conservation of Habitats and Species Regulations 2017 (as amended). SI 2017/1012. London: HMSO and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 No. 579.

Wildlife and Countryside Act 1981 (as amended)

- 1.9 The Wildlife and Countryside Act 1981 (WCA) (as amended)² transposes the obligations set out in the Bern Convention³ into national law. The Bern Convention aims to ensure conservation and protection of wild plant and animal species and their natural habitats, particularly where this requires cooperation between contracting parties.
- 1.10 Appendix II of the Convention includes animal species (fauna) strictly protected under special legal and management conservation measures, including the ban on capturing, keeping, disturbance, deliberate killing, possession and sale.
- 1.11 The WCA (as amended) is the major legal instrument for wildlife protection in the UK and provides a national level of protection to specific native animals. All bat species are listed in Schedule 5 of the WCA and, in addition to the provisions of the Conservation Regulations 2017, these species are therefore also afforded protection in respect of paragraph 9(4)(b) (disturbance while occupying a place or structure of shelter), paragraph 9(4)(c) (obstruction of access to a place or structure of shelter) and paragraph 9(5) (relating to possession and sale).

Environment (Wales) Act 2016

- 1.12 Under the Environment (Wales) Act (2016)⁴, Section 7 requires biodiversity lists to be produced. These lists include types of species which are of "Principal Importance" for the purpose of maintaining and enhancing biodiversity in relation to Wales. This list supersedes the duty in Section 42 of the NERC Act 2006.
- 1.13 Bat species listed under Section 7 include Barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, Noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*.⁵

Wrexham Biodiversity Action Plan (2002)

- 1.14 The lesser horseshoe bat is also listed under the Wrexham Local Biodiversity Action Plan (LBAP).
- 1.15 Species identified under the LBAP are 'priority species' included under the UK BAP list of 'priority species' and/or are locally significant 'priority species'. The LBAP is aimed at addressing changes in the distributions of 'priority species' and opportunities that arise for conservation action.

² Wildlife and Countryside Act 1981: Elizabeth II. 1981 Chapter 69. (1981) London: Her Majesty's Stationery Office.

³ Convention on the Conservation of European Wildlife and Natural Habitats. Bern, 19.IX.1979.

⁴ Environment (Wales) Act 2016 (legislation.gov.uk), accessed Nov 22

⁵ master s7 species list May 2016 final.pdf, accessed Nov 22

2.0 Methods

- 2.1 The following bat surveys were undertaken in accordance with the Bat Conservation Trust (BCT) Survey Guidelines (Collins, 2016⁶).

Day time Preliminary Roost Assessments

Ground Level Tree Assessment

- 2.2 A GLTA was undertaken by TEP ecologists on 25th and 29th March 2022 as presented in TEP Report Ref: 9134.005 V4.0.
- 2.3 Trees were viewed from the ground with the aid of binoculars and a high-powered torch (fitted with a red filter) where necessary. Where accessible from the ground, potential roost features (PRFs) were closely inspected using an endoscope and torch as aids. Based on the PRF characteristics, trees were categorised for their roost suitability according to the criteria summarised in Table 1.

Table 1: Categorisation of trees for bat roost suitability

Suitability	Roosting habitats
Negligible	No potential roost features are present that are likely to be used by bats.
Low	A tree with one or more potential roost features that could be used by individual bats opportunistically, but which do not offer sufficient space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats.
Moderate	A structure or tree with one or more potential roost features that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but which is unlikely to support a roost of high conservation status (maternity or hibernation).
High	A structure or tree possessing one or more potential roost features that are suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time, due to their size, shelter, protection, conditions and surrounding habitat.

Limitations

- 2.4 There are no seasonal constraints for undertaking GLTA, however the optimal period for undertaking this survey is between December and March when trees are out of leaf. The GLTA was made during the optimal period in March and this is therefore not a limitation to the survey.

⁶ Collins, J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

Aerial Assessment

- 2.5 Day time aerial inspections were undertaken by licensed TEP subconsultant ecologist Stewart Bradshaw (Bat License Registration: 2015-15615-CLS-CLS) in June 2022 as presented in TEP Report Ref: 9134.005 V4.0. Aerial assessments were undertaken of trees identified during the GLTA to have high or moderate suitability for roosting bats, or as having PRFs whose suitability could not be confidently categorised during the GLTA, that were likely to require removal to facilitate the proposed development (based on Parameters Plan UG_1331_UD_DRG_PP_Ro1 dated 16th May 2022).
- 2.6 Based on the locations of the PRF found in the GLTA survey, aerial inspections were made from a ladder or by rope climbing to closely inspect the PRFs with an endoscope and torch. If it was possible and safe to inspect, the roost suitability of each tree was re-categorised in accordance with Table 1.

Limitations

- 2.7 Not all trees and features could be fully assessed during the aerial inspection due to health and safety issues or access restrictions. In the case where trees were not climbed, trees were evaluated by the GLTA results and categorisation as seen in Table 3.

Nocturnal Roost Surveys

- 2.8 From the results of the GLTA and aerial assessment, a total of 77 trees were identified as having roost suitability (TEP Report Ref: 9134.005 V4.0). However, of these, only 16 are likely to require removal in the detailed component of the proposed development. These comprised one tree with high potential (T99), four with moderate potential (G10.4, T69, T70, T75) and eleven with low potential for roosting bats (G10.1, G10.2, G10.3, G10.5, T46, T62, T67, T73, T78, T79, T116).
- 2.9 High and moderate potential trees requiring removal in the detailed component only were subject to nocturnal surveys in accordance with the BCT Guidelines. Three nocturnal surveys were undertaken of T99 and two were undertaken of T69, T70 and T75. A single survey was undertaken of G10.4 as the only PRF present was close to the ground and found to be completely obscured by vegetation during the first nocturnal survey, making it unsuitable for roosting bats. Therefore, this tree did not require any further survey. Nocturnal surveys are not required of low potential trees, in line with BCT Guidelines.
- 2.10 Surveys were led by bat licenced ecologists and assisted by several surveyors. The first visit was undertaken on 16 June 2023 and included eight surveyors on five trees, the second visit was undertaken on 29 June 2023 and included six surveyors on four trees, and the third visit was undertaken on 18 July 2023 and included two surveyors on one tree.

- 2.11 Surveyors were stationed at fixed vantage points and were positioned such that all potential roost features and characteristics were in view, where certain points could not be seen a night vision aid (NVA) camera⁷ was placed.
- 2.12 A combination of full spectrum and frequency division detectors (Elekon Batlogger M or Anabat Express) were employed at each vantage point on all surveys. Radios were utilised for communicating between surveyors to reduce interference from mobile phones and to enable coordination when recording observations.
- 2.13 Dusk emergence surveys commenced 15 minutes before sunset and finished 1.5 hours after sunset and included observations such as bat species, the number of bats entering or leaving the trees, the location of entry and exit points, behaviours such as close interest in a tree or its features, commuting or passing bats and weather conditions were recorded.
- 2.14 Weather conditions were recorded at the start and end of surveys in addition to any significant change in condition during the survey. Weather was optimal during all the nocturnal surveys, being dry with little breeze and temperatures ranging from 21°C at the start to 13°C at the finish. Surveys were carried out during the optimal survey period of the year (mid-April to mid-September). Full details of weather conditions are shown in Table 2.

Table 2: Weather Conditions During Tree Roost Surveys 2023

Survey Date	Sunrise/ Sunset	Survey Time	Temperature (°C)	Rain	Cloud*	Wind**
14.06.23	21:39	Start: 21:24	21	0	0	1
		End: 23:09	17	0	0	1
29.06.23	21:41	Start: 21:26	15	0	5	2
		End: 23:11	13	0	5	2
18.07.23	21:28	Start: 21:13	16	0	8	3
		End: 22:58	14	0	8	2

* Cloud cover is reported in oktas or eighths with the additional convention that 0 oktas represents the complete absence of cloud, 1 okta represents a cloud amount of 1 eighth or less, but not zero, 7 oktas represents a cloud amount of 7 eighths or more, but not full cloud cover, 8 oktas represents full cloud cover with no breaks, 9 oktas represents sky obscured by fog or similar.

** Wind strength is reported using the Beaufort Scale of Wind Force, this scale runs from 0 to 12, information on the conditions experienced during surveys are as follows: 0 – Calm (vertical smoke); 1 – Light Air (slight smoke drift); 2 – Light Breeze (leaves gently rustle); 3 - Gentle Breeze (Small twigs constantly move); 4 - Moderate breeze (Small branches begin to move); 5 - Fresh breeze (small trees in leaf begin to sway).

- 2.15 Sonogram analysis was subsequently carried out using Kaleidoscope Pro Analysis Software on all recorded bat passes to confirm species identification as far as possible.

⁷ Bat Conservation Trust Interim Guidance Note: Use of night vision aids for bat emergence surveys (2022)

Limitations

- 2.16 The nocturnal bat roost surveys were undertaken during the optimal survey period (May – September) and in optimal weather conditions, with temperatures above 10°C and little rain. There was very light rain during the third survey at 22:13 and between 22:21 and 22:28. However, bats were recorded before, during and after this rain and this is therefore not considered a significant limitation to the survey.
- 2.17 Bats vary their calls dependant on the habitats they fly in and on their activity (commuting, foraging and social interaction, etc.). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor-quality recordings (e.g., brief and distance passes). In these cases, it is accepted that species are identified to genus level or group level (e.g., *Myotis*, *Myotis/Plecotus* and *Nyctalus/Eptesicus*) (Russ, 1999⁸). This ensures the dataset is interpreted accurately and transparently.

⁸ Russ J (1999) The Bats of Britain and Ireland: Echolocation Calls, Sound Analysis, and Species Identification. Alana Books, Ludlow, UK.

3.0 Results

Day time Preliminary Roost Assessments

GLTA

- 3.1 The results of the GLTA are illustrated in the Bat Ground Level Tree Assessment Result Drawing G9134.015.1-4 A, presented at the end of this report.
- 3.2 Tree descriptions and roost suitability categorisations for all trees assigned from the GLTA are provided in TEP Report Ref: 9134.005 V4.0. These are replicated below in Table 3 for the five trees subject to nocturnal survey in 2023.

Table 3: Results of ground level tree assessments for trees subject to nocturnal survey in 2023

Tree ID	Description and PRF Characteristics	Roost Suitability based on ground-based assessment
T69	A large mature oak tree that has had a recent total stem failure. SJ 38556 51066. PRFs: Multiple features associated with tear out/stem failure resulting in large cavity and splits. Conditions not suited to hibernation/maternity roosts due to openness.	Moderate
T70	A mature pedunculate oak tree with sparse ivy cladding situated within the field boundary hedgerow (H22). Ivy does not provide suitable PRF itself. SJ 38536 51076. PRFs: A: East-facing cavity on limb at approximately 6m. B: Snapped branch with associated west-facing cavity at approximately 6 m. C: Desiccated limb with associated lifted bark visible from western aspect.	Moderate

Tree ID	Description and PRF Characteristics	Roost Suitability based on ground-based assessment
T75	A mature pedunculate oak tree with considerable deadwood, situated within hedgerow and ditch. SJ 38442 50994. PRF features: A: Large desiccation fissure/cavity south-west facing at approximately 5 m. B: Lifted bark south-west facing on north-west leading branch, at approximately 4.5 m. C: Transverse snap/crack south-east facing at approximately 6 m. D: Potential cavity on desiccated branch/ram's horns north-west facing at approximately 6 m. E: Lifted bark, potential cavity, north-facing at approximately 4 m.	 High
T99	A middle age common ash tree situated in the northern boundary hedgerow (H19). SJ 38364 51284. PRFs: A: Severe split running up entire main stem on north and south aspect, multiple PRFs throughout. .	 High

Tree ID	Description and PRF Characteristics	Roost Suitability based on ground-based assessment
G10.4	A mature pedunculate oak tree situated within the group of trees within scrub area near to pond. SJ 38317 51087. PRFs: A: PRFs consisting of fluting at waist height on the southern aspect of the main stem. Attempted endoscope survey during GLTA but unsuccessful. 	Moderate

Aerial assessment

- 3.3 A number of trees including T69, T70, and T99 could not be assessed by aerial inspection due to health and safety or the features could not be full inspected due to access.
- 3.4 The aerial assessment was undertaken on two of the five trees (G10.4 and T75) which were likely to require removal to facilitate development in the detailed component. The aerial assessment did not alter the roosting potential of G10.4 which remained at moderate, but T75 was re-categorised from high to moderate potential. Full results of the aerial assessments are provided in TEP Report Ref: 9134.005 V4.0.

Roost Surveys

Nocturnal Bat Roost Surveys

- 3.5 No bats were recorded emerging from or returning to roost within any of the trees during the 2023 nocturnal bat roost surveys. The results of the surveys on trees T69, T70, T75, T99 and G10.4 are provided in Table 4 and summarised below.
- 3.6 During the first visit, small numbers of noctule and soprano pipistrelle species were recorded on site as well as individual *Myotis* registrations around G10.4, T99 and T75, mainly commuting along hedgerows. The first bat recorded was at 21:43 (sunset +4mins) and the last bat at 23:08.
- 3.7 During the second visit noctule, common pipistrelle and soprano pipistrelle species were confirmed in small numbers. An individual brown long-eared bat was recorded around T75 as 23:00 and an individual *Myotis* pass was recorded at T99. The first bat was recorded at 21:31 (sunset +10mins).
- 3.8 During the third visit only T99 was surveyed, and small numbers of common pipistrelle, soprano pipistrelle and noctule were recorded. The first bat was recorded at 21:41 (sunset +13mins).

Table 4: First and last bat contact times recorded per species recorded during nocturnal roost surveys and surveyor observations of bat activity.

Date	Survey Time	Sunrise/ Sunset	Species Recorded (First contact time for dusk emergence nocturnal roost surveys)	Surveyor Observations
14.06.23	Start: 21:04 End: 23:09	21:39	First bat: 21:43 Last bat: 23:08	No roosting recorded. <i>Myotis</i> , soprano pipistrelle and noctule commuting and foraging along hedgerows.
28.06.23	Start: 21:26 End: 23:11	21:41	First bat: 21:31 Last bat: 23:12	No roosting recorded. Common pipistrelle, soprano pipistrelle and noctule in small numbers as well as individual brown long-eared bat and <i>Myotis</i> passing.
18.07.23	Start: 21:13 End: 22:58	21:28	First bat: 21:41 Last bat: 22:56	No roosting recorded. Common pipistrelle, soprano pipistrelle and noctule observed in small numbers.

3.9 Bats are likely to use a variety of roost sites within the wider landscape depending on variables such as their age, sex, and roost habitat preferences as well as the season/weather. Timings of first and last contacts for all bat species and their behaviour recorded by surveyors during the nocturnal roost surveys, as detailed in Table 4, indicate that bats are roosting within the surrounding locality.

4.0 Conclusions

- 4.1 No roosting bats were identified in any trees (T69, T70, T75, T99, and G10.4) during nocturnal emergence surveys, therefore no European Protected Species Licence (EPSL) will be required. The findings of this survey are valid for two survey seasons from date of the last nocturnal survey.

Recommendations

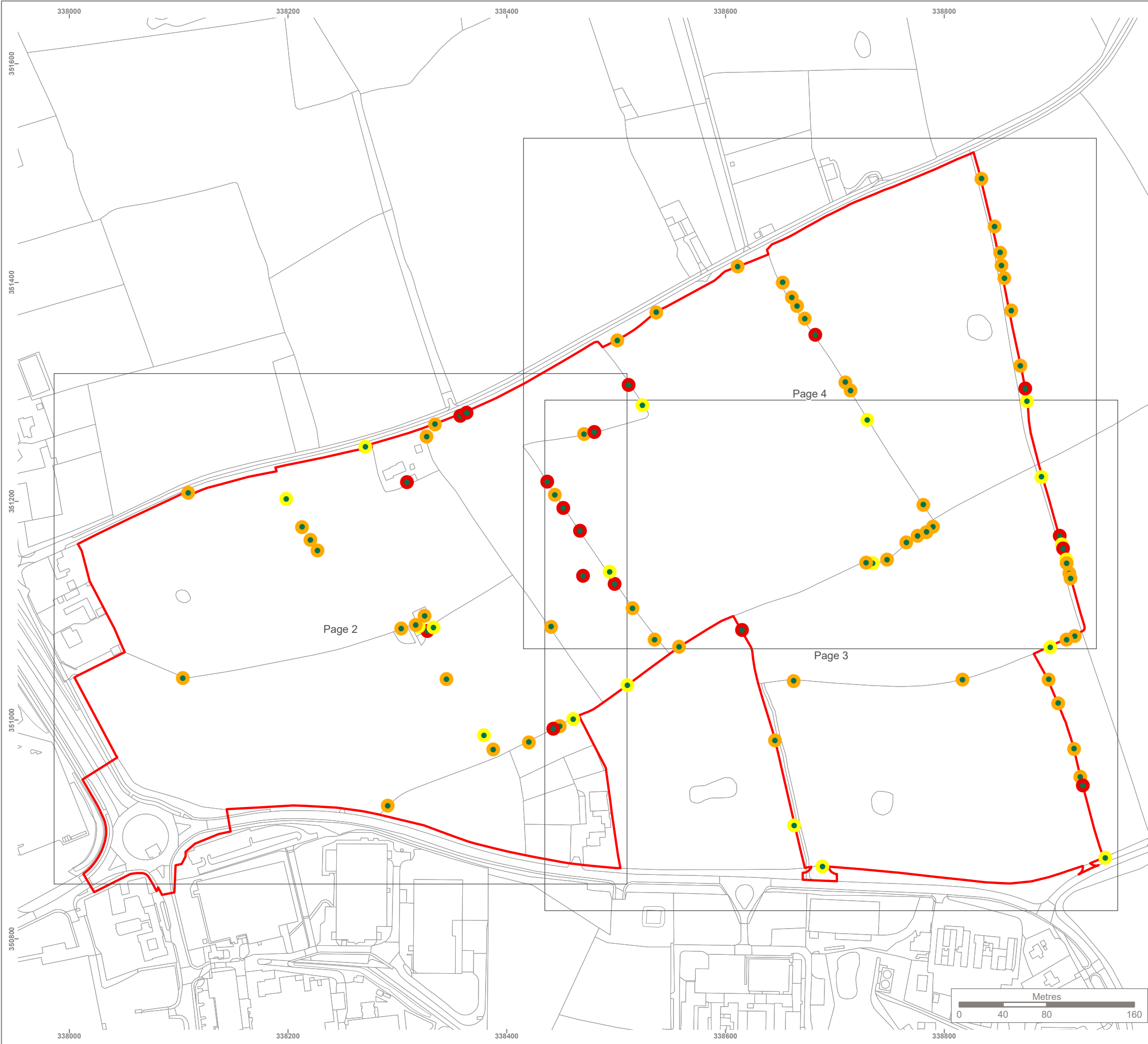
- 4.2 If any further trees with roosting potential require removal to facilitate the proposed development in the detailed component, further surveys will be required. Further surveys will also be required of trees to be removed in the outline component prior to a reserved matters application.
- 4.3 A Precautionary Working Method Statement (PWMS) should be adhered to during tree removal to avoid the risk of harm to any bat that may have moved to roost in trees in the intervening period between the 2023 roost surveys and felling.
- 4.4 A sensitive lighting strategy will be implemented as part of the scheme to avoid indirect impacts of lighting on nocturnal and crepuscular species, on retained and created habitats identified as important commuting/ foraging routes for bats. There are four key lighting design principles:
- Use of unnecessary lighting will be avoided;
 - Spatial spread of lighting – the horizontal and vertical spread of artificial light will be minimised and take into account for both primary and reflected light sources. Directional lighting can be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these;
 - Timing and duration of lighting – timers and bespoke dimming regimes may be used to ensure that luminaires are reduced at times of predicted low use. These can be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Motion sensors provide further control to ensure that areas are illuminated only when required; and
 - Intensity and colour of lighting – light intensity will be as low as possible whilst meeting the objectives of the intended function. The colour of lighting will need to take into account the sensitivity of the ecological receptors on site. Light sources selected should emit zero ultra-violet light whenever possible. Guidance Note 08/18 Bats and artificial lighting in the UK⁹ recommends that a warm white spectrum (ideally <2700Kelvin) should be used to reduce blue light component and luminaires should feature peak wavelengths higher than 550 nanometers to avoid the component of light most disturbing to bats. Narrow spectrum light sources should be used (to lower the range of species affected by lighting).
- 4.5 Details of the proposed lighting scheme can be secured by way of an appropriately worded planning condition.

⁹ Institution of Lighting Professionals (ILP) (2018), Guidance Note 08/18 Bats and artificial lighting in the UK. ILP, Rugby.

- 4.6 Installation of bat boxes within the building design and / or retained trees will mitigate the loss of roosting opportunities caused by the proposals. The bat boxes should be targeted for those species known to occur in the surrounding area i.e. pipistrelle species, such as the Schwegler 2FN bat box for retained trees. The boxes should be placed at least 2.5m high and should be south or west facing, close to retained or replacement foraging habitats such as the hedgerow in the west of site. In line with the ES Chapter 11: Biodiversity (TEP Report Ref: 9134.011), a minimum of 25 bat boxes should be provided across the proposed development site as a whole.
- 4.7 Details of the specification and location of bat boxes can be secured by way of an appropriately worded planning condition.
- 4.8 The habitats on site offers suitability for foraging and commuting bats in the form of scattered trees and the boundary hedgerows. The impacts of the proposed development and proposed mitigation are assessed in the accompanying ES Chapter 11: Biodiversity (TEP Report Ref: 9134.011).

DRAWINGS

Bat Ground Level Tree Assessment Results G9134.015.1-4 A



KEY

- Site boundary
- Page and page number
- A34 Broad-leaved tree with low bat suitability
- A35 Broad-leaved tree with moderate bat suitability
- A36 Broad-leaved tree with high bat suitability

Note:
The locations of habitats and habitat features are indicative.

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Site Map

1:100,000

A	Site boundary update	SP	AE	14/04/2023
Rev	Description	Drawn	Approved	Date



THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.[tep.uk.com](http://www.tep.uk.com)

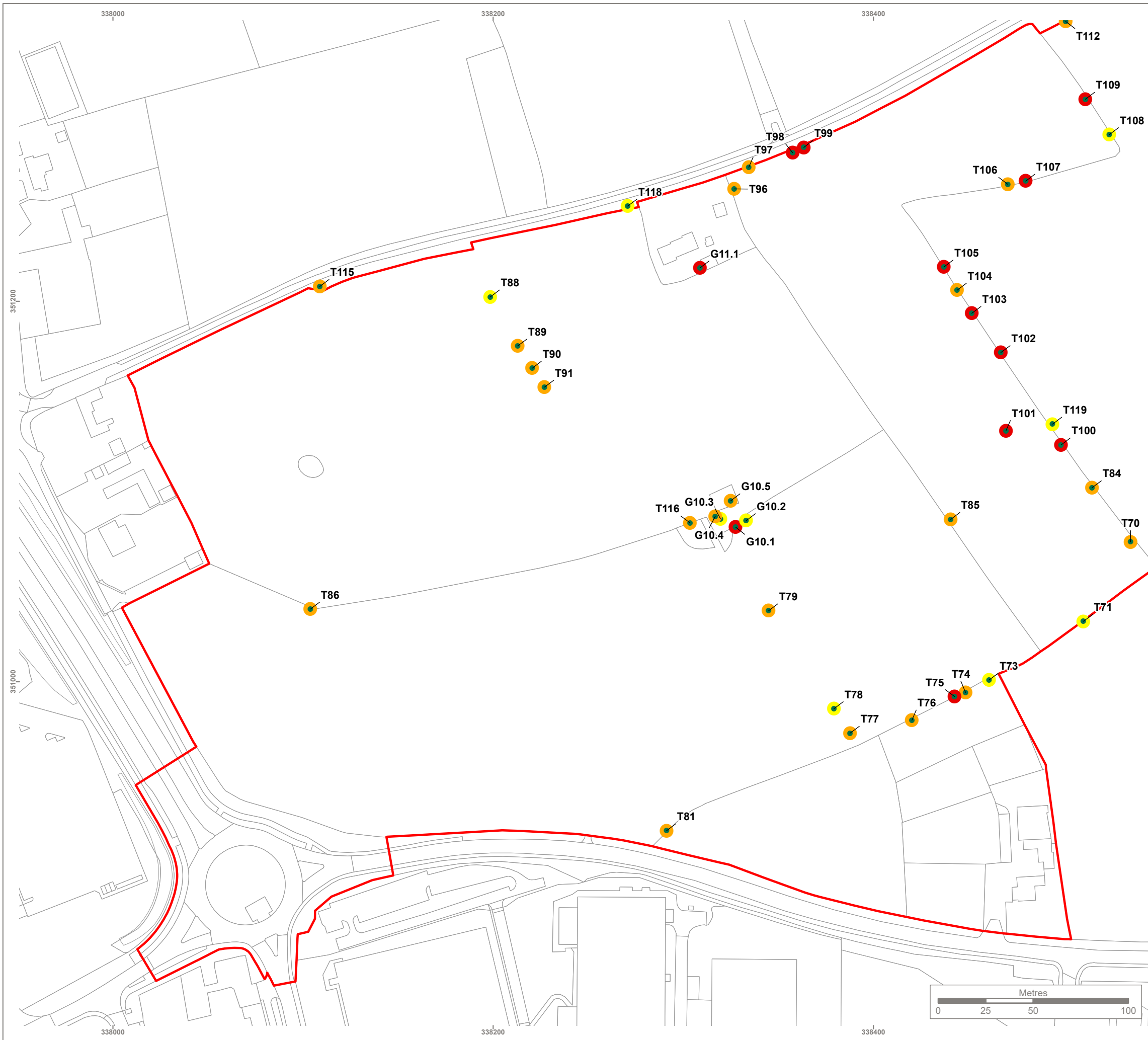
Project
Land North of Bryn Lane, Wrexham

Title
Bat Ground Level Tree Assessment Results

Drawing Number
G9134.015.1 A

Page 1 of 4

Drawn	Checked	Approved	Scale	Date
BJ	SA	KG	1:3,500 @ A3	12/06/2023



KEY

- Site boundary
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Site Map

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A	Site boundary update	SP	AE	14/04/2023
Rev	Description	Drawn	Approved	Date



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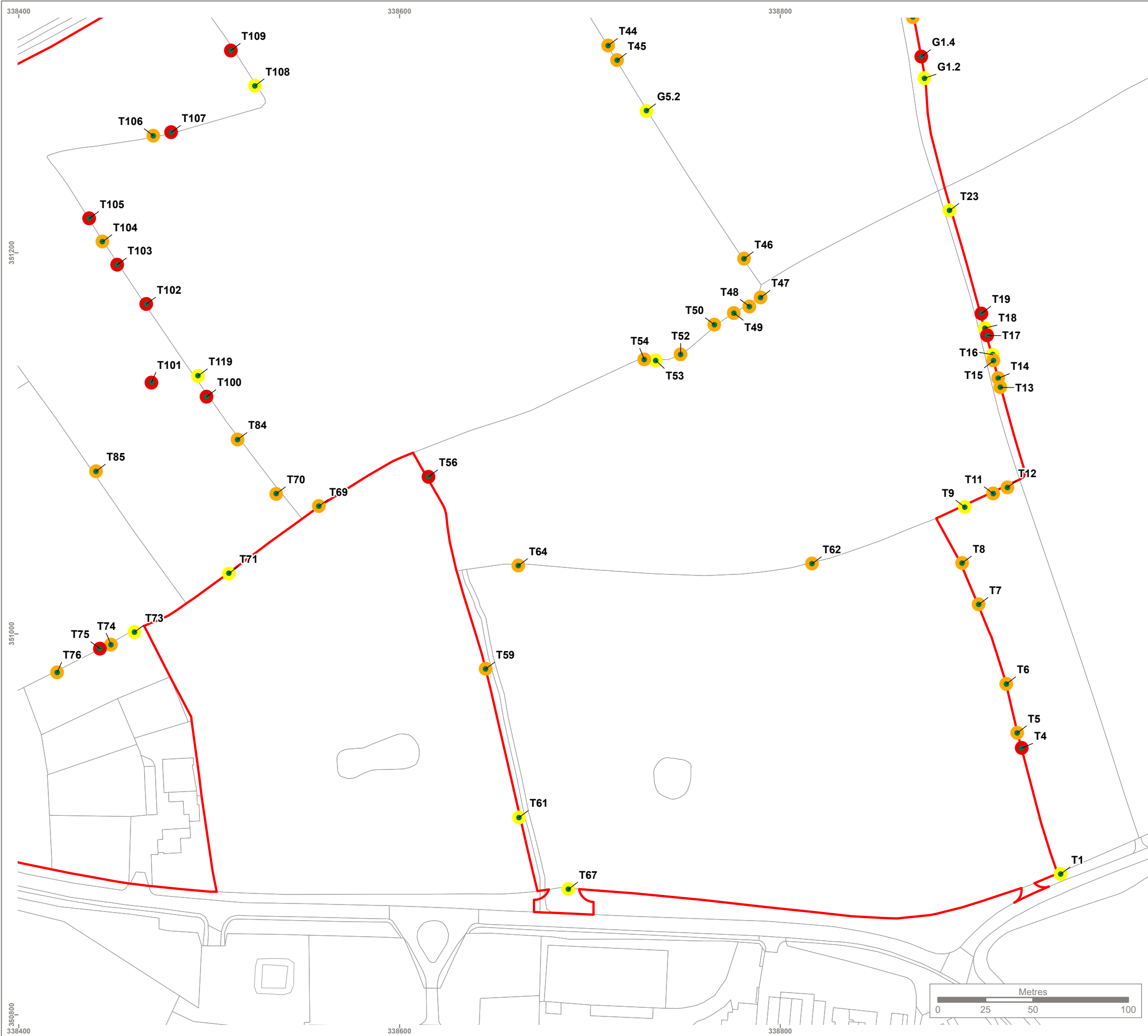
Project
Land North of Bryn Lane, Wrexham

Title
Bat Ground Level Tree Assessment Results

Drawing Number
G9134.015.2 A

Page 2 of 4

Drawn	Checked	Approved	Scale	Date
BJ	SA	KG	1:2,000 @ A3	12/06/2023



KEY

- Site boundary
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Site Map

The inset map shows a wider geographical context, including the A534 road and the locations of Wrexham and Pentre Maelor. The site boundary is highlighted in red on this map. A scale of 1:100,000 is indicated.

A	Site boundary update	SP	AE	14/04/2023
Rev	Description	Drawn	Approved	Date

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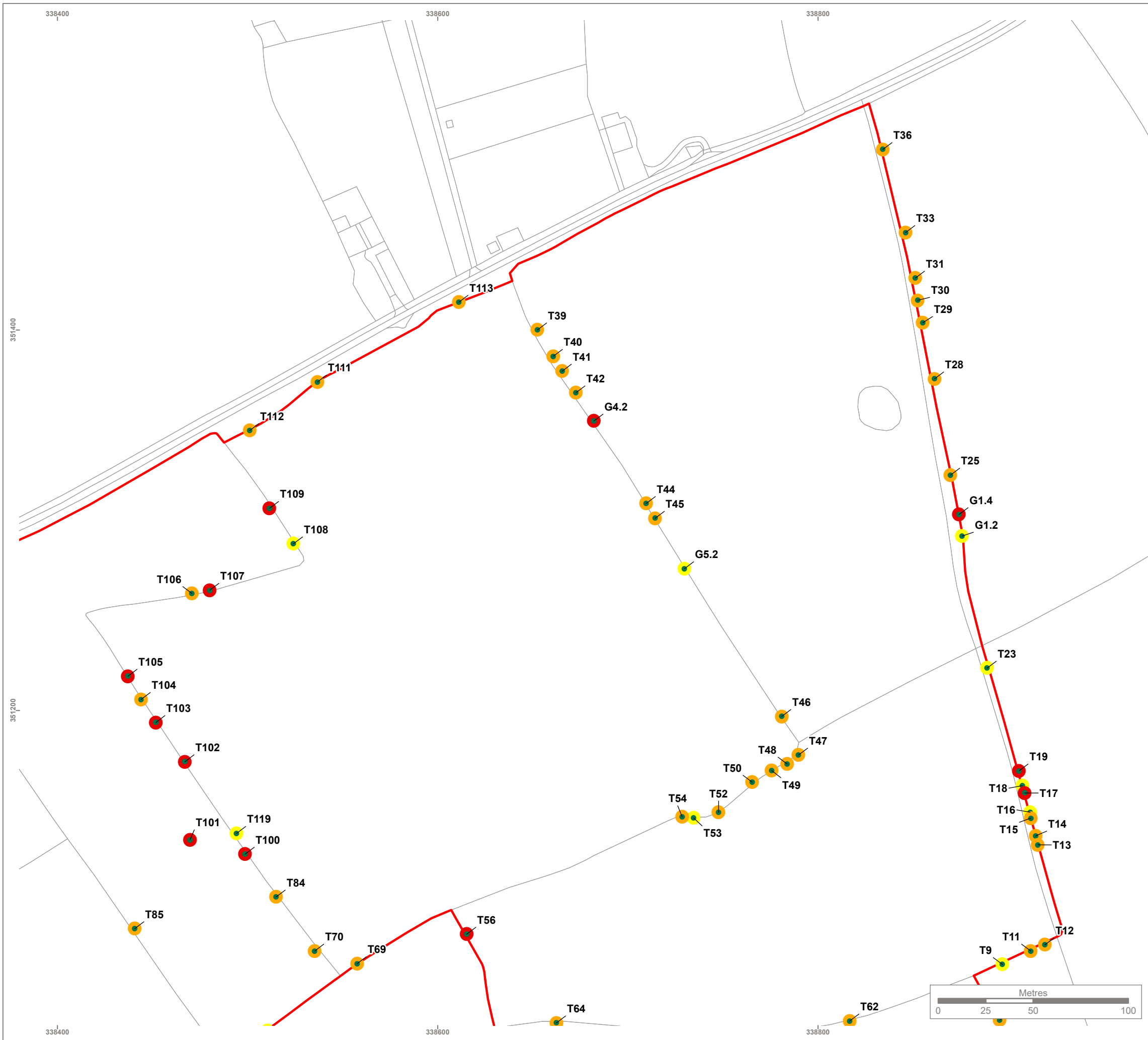
Project
Land North of Bryn Lane, Wrexham

Title
Bat Ground Level Tree Assessment Results

Drawing Number
G9134.015.3 A

Page 3 of 4

Drawn	Checked	Approved	Scale	Date
BJ	SA	KG	1:2,000 @ A3	12/06/2023



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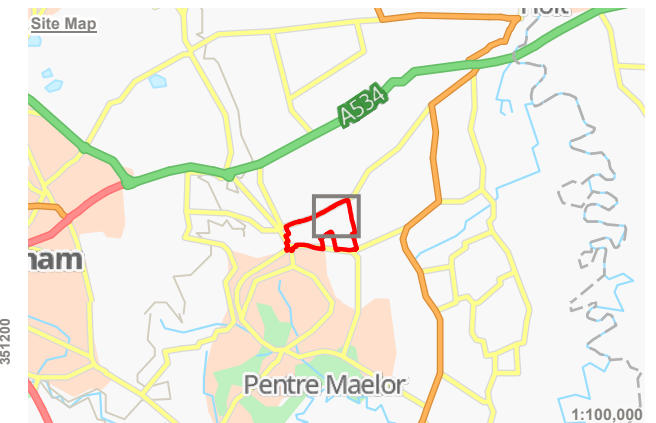
- Site boundary
- A34 Broad-leaved tree with low bat suitability
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A	Site boundary update	SP	AE	14/04/2023
Rev	Description	Drawn	Approved	Date



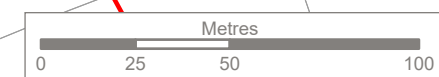
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Bat Ground Level Tree Assessment Results

Drawing Number G9134.015.4 A				Page 4 of 4
Drawn BJ	Checked SA	Approved KG	Scale 1:2,000 @ A3	Date 12/06/2023





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