



**Preliminary Tree Roost
Assessment**

Land at A28 Sturry Link Road

February 2023

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Contents

1.	Introduction.....	4
2.	Methodology.....	6
3.	Results.....	9
4.	Discussion and Recommendations.....	18
5.	Conclusions.....	22
6.	References.....	24

Appendices

Appendix A – Photographs

Appendix B – Site Area and Survey Area

Appendix C – Trees to potentially be impacted by the A28 Sturry Link Road Scheme

Appendix D – Amey’s Preliminary Tree Roost Assessment Map for 2017 and 2019

Appendix E – Preliminary Tree Roost Assessment Map 2022

Appendix F – Legislation

Non-technical Summary

Phlorum Ltd was commissioned by Project Centre, on behalf of Kent County Council, to carry out a Preliminary Roost Assessment (PRA) in respect to bats in trees for the A28 Sturry Link Road Scheme. The PRA covered land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854) and the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.

A Preliminary Ecological Appraisal, by Amey in 2015, identified several trees with low to moderate bat roosting potential. Bat transect surveys were carried out by Bioscan in 2017, amended 2019, which found several bats foraging and commuting within the area. A PRA was previously carried out by Amey, for the A28 Sturry Link Road planning application in 2017 on twelve trees (report issued in 2018), with a second visual ground-based tree roost assessment being carried out in 2019 on the remaining eight trees. The aim of this PRA is to determine whether the ecological constraints that could affect the proposed works of the A28 Sturry Link Road Scheme have changed since 2017 and 2019.

The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to Southern Water's Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line. Furthermore, the adjacent Land at Sturry developers have planning permission (CA/20/02826) to construct the adjoining east-west sections of the A28 Sturry Link Road north of the Canterbury to Ramsgate Railway Line including the connecting roundabout as set out below:

"Development of a community extension comprising: outline application (with all matters reserved) for the development of up to 630 houses and associated community infrastructure comprising a primary school, community building, public car park and associated amenity space, access, parking and landscaping; and detailed/full application for the construction of part of the Sturry Link Road and a local road from the Sturry Link Road to Shalloak Road".

For this PRA report a distinction has been made between the larger Survey Area and the smaller Site Area (the smaller Site Area being the development area for the new A28 Sturry Link Road scheme). The Survey Area extended over approximately 14.7 hectares (ha) covering the Site Area for the proposed A28 Sturry Link Road scheme (Planning ref: CA/21/01854) and the southern region of the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.

The land that is the responsibility of the A28 Sturry Link Road Scheme developer will hereafter be referred to as the "Site Area". See areas highlighted in red in Figure 1 in Appendix B for the areas of land that will be of the responsibility of the A28 Sturry Link Road Scheme developers (Planning ref: CA/21/01854). See Figure 2 in Appendix B for the extent of land which has been surveyed and is covered by both the A28 Sturry Link Road planning application and the Land at Sturry planning application.

The main findings of the survey are as follows:

- The data search (KMBRC, 2022) returned records of bats from the genera pipistrelle (*Pipistrellus*), long-eared (*Plecotus*), myotis (*Myotis*), serotine (*Eptesicus*), and noctule/Leisler's (*Nyctalus*) occurring within 5km of the Survey Area in the past 15 years.
- The previous PRAs carried out by Amey, within the Site Area in 2017 (report issued 2018) and 2019 noted one tree with high potential (T1), one tree with moderate to high potential (T2), one tree with moderate potential (T10), one tree with low to moderate potential (T7), three trees with low potential (T6, T12, T16), three trees with negligible to low potential (T17, T18, T19) and ten trees had negligible potential to support roosting bats.
- In 2022, Phlorum assessed T1 in the Site Area as offering high potential for roosting bats and so it is recommended that a series of three emergence/re-entry surveys are carried out for this tree prior to its removal, to determine whether roosting bats are using the tree.
- In 2022, Phlorum assessed T2, T10, T11, T15, T21, T22 and T23 in the Site Area as offering moderate potential for roosting bats and so it is recommended that a series of two emergence/re-entry surveys are carried out for each tree prior to their removal, to determine whether roosting bats are using these trees.
- Alternatively, aerial tree climbing surveys could be carried out for trees with moderate or high potential for roosting bats, if they are safe and suitable to climb. Depending on the findings, this may eliminate the need for further activity surveys.
- In 2022, Phlorum assessed T4, T5, T6, T7, T8, T9, T12, T17, T18, T19 and T24 in the Site Area as offering low potential to support roosting bats and so it is recommended that these trees are soft felled under supervision by a suitably experienced ecologist.
- No further bat surveys are recommended for the remaining trees within the Site Area, T3, T13, T14, T16 and T20, which were assessed as offering negligible potential for roosting bats.
- If bats are found during the tree works, within any trees on the site that are to be removed or reduced, activities should cease immediately, and advice sought from the suitably qualified ecologist.

- Within the Survey Area but outside of the Site Area in 2022, it is recommended that a series of two emergence/re-entry surveys are carried out for T26 and T27 prior to their removal, if they are to be removed, to determine whether roosting bats are using these trees. It is also recommended that T25 is soft felled under supervision by a suitably experienced ecologist. It is understood that these three trees will be the responsibility of the Land at Sturry developers.
- Bat boxes should be installed to provide additional roosting opportunities on the site and lighting should be controlled to minimise impact on any potential roosting or foraging bats.

1. Introduction

Background

- 1.1 Phlorum Limited was commissioned by Project Centre, on behalf of Kent County Council, to undertake an preliminary bat roost assessment (PRA) survey of the trees that reside within land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854) and the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.
- 1.2 For this PRA report a distinction has been made between the larger Survey Area and the smaller Site Area (the smaller Site Area being the development area for the new Sturry Link Road scheme). The Survey Area extended over approximately 14.7 hectares (ha) covering the Site Area for the proposed A28 Sturry Link Road scheme (Planning ref: CA/21/01854) and the southern region of the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.
- 1.3 The land that is the responsibility of the A28 Sturry Link Road Scheme developer will hereafter be referred to as the "Site Area". See areas highlighted in red in Figure 1 in Appendix B for the areas of land that will be of the responsibility of the A28 Sturry Link Road Scheme developers (Planning ref: CA/21/01854). See Figure 2 in Appendix B for the extent of land which has been surveyed and is covered by both the A28 Sturry Link Road planning application and the Land at Sturry planning application.
- 1.4 As part of the assessment, a desktop review, a review of previous reports and a site visit were carried out. The results of which were used to assess the nature conservation importance of the site and the potential of the site to support bats, a protected species.
- 1.5 This report has been compiled in accordance with current guidelines (British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development, 2013 and The Chartered Institute of Ecology and Environmental Management (CIEEM), 2017 and 2018).
- 1.6 The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.

Site Area Description

- 1.7 The Site Area for the proposed A28 Sturry Link Road scheme comprised three separate areas of land. These areas of land will be the responsibility of the A28 Sturry Link Road Scheme developers. See the areas highlighted in red in Figure 1 in Appendix B for the location of the three separate areas of land. The majority of the Site Area lies between the A28 Sturry Road, where the Site Area runs adjacent to Sturry Road Community Park, and the Canterbury to Ramsgate railway line. Part of a field to the north of the Canterbury to Ramsgate railway line covering the location of the proposed rail bridge is included. The Site Area also includes a section of the field to the west, providing a link road to Broad Oak Road, and a short section of Broad Oak Road and Shalloak Road immediately north of the Canterbury to Ramsgate railway line. A small area of road to the east of the main Site Area, comprising the A291 Herne Bay Road/Sturry Hill and A28 Island Road junction, also resides within the Site Area.
- 1.8 The Site Area comprised buildings, hardstanding, amenity grassland, agricultural land, improved grassland, semi-improved neutral grassland, marshy grassland, ruderal vegetation, continuous scrub, broad-leaved semi-natural woodland, water bodies, reedbed, individual trees, and hedgerow and trees.
- 1.9 The National Grid Reference for the centre of the Site Area is TR 16942 60093.

Survey Area Description






- 1.10 In addition to the Site Area location described above, the Survey Area also comprised land associated with the Greenfield Shooting Grounds and the rest of the land within the Land at Sturry Application Site. See the blue line boundary in Figure 2 in Appendix B for the Survey Area.
- 1.11 The Survey Area comprised buildings, hardstanding, amenity grassland, agricultural land, improved grassland, semi-improved neutral grassland, marshy grassland, ruderal vegetation, continuous scrub, broad-leaved semi-natural woodland, water bodies, reedbed, individual trees, and hedgerow and trees.

2. Methodology

Data Search

- 2.1 Records for bats within a 5km radius of the Survey Area were obtained from the Local Records Centres (KMBRC, 2022) as part of the Preliminary Ecological Appraisal that was carried out on the 13th and 14th of September 2022. As part of the KMBRC data search, data from the local Kent bat group was also provided.

Review of Previous Reports

- 2.2 The desk study has involved the review of the following previous reports carried out for the site:
-  Preliminary Ecological Appraisal (Amey, 2015);
 -  Land at Broad Oak Farm & Land at Sturry. Ecology and Nature Conservation: Combined Baseline Information (amended 2019) (Bioscan (UK) Ltd, 2017; amended 2019). Appendix 7.1 of Land at Sturry Environmental Statement;
 -  Baseline Ecology Report A28 Sturry Link Road, Canterbury (Amey, 2018). Appendix 11.1 of A28 Sturry Link Road, Canterbury Environmental Statement, Volume 4;
 -  Environmental Statement Volume 2, A28 Sturry Link Road, Canterbury (Amey, 2019); and
 -  Preliminary Ecological Appraisal (Phlorum, 2022).

Personnel

- 2.3 The PRA was carried out by Emily Phillips (BSc (Hons); QCIEEM), an ecologist with over 2 years of experience in undertaking ecological surveys. The survey results and assessment were reviewed by Paul Carter (BSc (Hons), MA and awaiting MCIEEM application), an ecologist with over 20 years of experience of managing landscaping and ecology projects, and by the project director Richard Schofield (BSc (Hons), MSc, CSJK, MCIEEM, MIEMA, CEnv), with over 20 years of experience in managing projects.

Preliminary Tree Roost Assessment

- 2.4 The ground-based assessment of the on-site trees was carried out on the 2nd November 2022, in accordance with good practice guidelines (Collins, 2016). The weather conditions on the day were warm, cloudy and dry.

- 2.5 A total of 27 trees/tree groups were included in the survey. It is understood that these could be impacted by the development. Three of the trees, T25, T26, and T27, fall within the Land at Sturry Application Site, with the remaining 24 falling under the responsibility of the Land at A28 Sturry Link Road developers (the Site Area).
- 2.6 The inspection of the trees included a review of potential bat roost features which include but are not limited to: woodpecker holes; knot holes; rot holes; cracks/splits; ivy; partially detached flaky bark; and other hollows or cavities. All trees were assessed using currently accepted criteria (Hundt 2012; Cowan, 2006), following the Cowan scale (Cowan, 2006) which is used to assign a value of 0-4 according to the presence or otherwise of features suitable for roosting bats. The Cowan Scale is summarised in the table below.

Table 2.1: Tree Assessment Criteria

Cowan Scale	Features
0: No Value	No visible features of use to bats.
1: Low Value	One or two minor features, possibly associated with feeding or night roosts, easily replaced; sparse ivy (<i>Hedera helix</i>), minor branch splits, small areas of loose bark, features less than 10 years old.
2: Moderate Value	Features which may provide a more secure site for small groups and individuals, fairly common features; dense ivy, significant branch splits, small cavities, present for between 10-30 years.
3: High Value	Features of particular significance, suitable for high priority roosts and large numbers of bats, conditions rare or uncommon in local area; large cavities, extensive branch splits, multiple opportunities in same tree, features may have been available for >30 years.
4: Confirmed roost	Evidence of use by bats e.g. bats, bat droppings.

- 2.7 The inspection also included a search for any secondary evidence of bats. Secondary evidence includes droppings, feeding remains, scratch marks, and oil and urine staining.
- 2.8 Any features that could potentially support roosting bats were viewed remotely from the ground using binoculars to assess suitability and identify signs of use. A high-powered torch was used to illuminate features.

Constraints

Data Search Constraints

- 2.9 It is important to note that, even where data is held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

Bat Survey Constraints

- 2.10 Bats are mobile animals which can move roost sites both within and between years. It is possible that surveys carried out in November could miss roosts occupied earlier or later in the year. Detection of secondary evidence for small numbers of crevice-dwelling species can be difficult, for example where droppings accumulate within an inaccessible void.
- 2.11 It is considered that the survey was sufficiently rigorous to assess the roosting potential of the trees for the purposes of this assessment.

3. Results

Data Search

- 3.1 The data search showed records of bats from the genera pipistrelle (*Pipistrellus*), long-eared (*Plecotus*), myotis (*Myotis*), serotine (*Eptesicus*), and noctule/Leisler's (*Nyctalus*) occurring within 5km of the Survey Area in the past 15 years. See the blue line boundary in Figure 2 in Appendix B for the Survey Area boundary.

Review of Previous Reports

The Preliminary Ecological Appraisal (Amey, 2015)

- 3.2 In 2015, the KMBRC returned records for six bat species within 5km of the A28 Sturry Link Road application boundary, with the nearest roost located approximately 0.5km away.
- 3.3 During the Amey Walkover in 2015, a "*number of trees lining boundary features were assessed as having low to medium roost potential due to the presence of suitable features such as cracks and ivy cladding*" within the A28 Sturry Link Road application boundary.
- 3.4 Further bat surveys for twelve trees were recommended "*to establish presence of roosts in tree with bat potential that will be impacted by the scheme*".

Land at Broad Oak Farm & Land at Sturry. Ecology and Nature Conservation: Combined Baseline Information (Bioscan (UK) Ltd, 2017, amended 2019). Appendix 7.1 of Land at Sturry Environmental Statement

- 3.5 The results of the bat activity surveys carried out within the Site Area by Bioscan (UK) Ltd in 2017 were reported in the Land at Broad Oak Farm & Land at Sturry. Ecology and Nature Conservation: Combined Baseline Information report (amended 2019). This report was reviewed to provide an insight into previously recorded bat activity within and around the Site Area and Survey Area. The transect activity surveys revealed common pipistrelles (*Pipistrellus pipistrellus*), soprano pipistrelles (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*), *Myotis* species and noctules (*Nyctalus noctule*) to be commuting and foraging within the Survey Area in 2017.

Baseline Ecology Report A28 Sturry Link Road, Canterbury (Amey, 2018). Appendix 11.1 of A28 Sturry Link Road, Canterbury Environmental Statement, Volume 4

- 3.6 An Amey bat licenced ecologist was accompanied by an Amey arborist in 2017 to carry out a detailed inspection of the twelve trees previously identified as having potential to support roosting bats in 2015, using an endoscope and torch where safe to do so.

- 3.7 Of the 12 trees that were assessed, one tree had high potential, one tree had moderate to high potential, one tree had moderate potential, one tree had low to moderate potential, two trees had low potential and six trees had negligible potential to support roosting bats. See Appendix D for the locations of the trees.
- 3.8 Bat emergence / re-entry surveys on the trees with low to high potential were carried out in September 2017. No bats were observed or recorded emerging from any of the trees.
- 3.9 Amey also carried out bat activity transect surveys in 2017 within the A27 Sturry Link Road Site Area. The highest levels of bat activity were recorded along the Great Stour River corridor, particularly when associated with tree lines and field boundaries. Amey (2018) found that *"Most activity was attributed to foraging common and soprano pipistrelle, with lower levels recorded for Nathusius' pipistrelle, noctule, serotine, Daubenton's, and a Myotis bat (whiskered, Alcathoe Myotis alcathoe or Brandt's M. brandtii).*

Environmental Statement Volume 2, A28 Sturry Link Road, Canterbury (Amey, 2019)

- 3.10 Amey ecologists carried out a visual ground-based tree roost assessments in August 2019. The assessments focussed on mature trees along the eastern proposed construction access route within the school grounds. One tree was assessed as offering low potential, three trees were assessed as offering negligible to low potential and four trees were assessed as offering negligible potential to support roosting bats. See Appendix D for the locations of the trees.
- 3.11 Bat emergence / re-entry surveys have not been carried out on these trees.

Preliminary Ecological Appraisal (Phlorum, 2022)

- 3.12 The preliminary ecological appraisal was carried out by Phlorum on the 13th and 14th of September 2022 when the trees within the Survey Area were still in full leaf. It was recommended that a PRA for bats be carried out in the winter once the trees have lost their leaves to ensure the trunk and limbs of the trees were visible.

Survey Overview

- 3.13 Where access permitted, trees within the Survey Area were inspected on the 2nd of November 2022. Access could not be obtained to a parcel of land to the south of the Great Stour River, close to where the river splits. This parcel of land contains trees T4-T10. Trees T4-T8 were viewed from a distance using binoculars, whilst trees T9 and T10 could not be surveyed. Weather conditions were dry and overcast with a moderate breeze. The inspection looked for potential roosting features or secondary evidence of bats.
- 3.14 Trees that could potentially be impacted by the works can be found in Appendix C.
- 3.15 The Site Area and Survey Area maps are shown in Appendix B.

Tree Assessment for Bats

Site Area

- 3.16 Twenty individual trees and groups of trees were assessed by Amey in 2017 and 2019 within the Site Area for their potential to support roosting bats. This 2022 PRA survey by Phlorum, which included the 20 trees previously assessed and four additional trees, served to determine whether the ecological constraints that could affect the proposed works of the A28 Sturry Link Road Scheme have changed since 2017 (report issued in 2018) and 2019. Trees identified within the Site Area as offering low to high potential to support roosting bats will be the responsibility of the A28 Sturry Link Road developers.
- 3.17 The results are presented in table 3.1 below:

Table 3.1: Tree Assessment Summary

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T1	High	High	T1 was difficult to survey because of the location and so, based on the previous assessment, it is assumed the tree is still of high potential for roosting bats.
T2	Moderate to high	Moderate	T2 was difficult to survey because of the location and so, based on the previous assessment, it is assumed the tree is still a minimum of moderate potential for roosting bats.
T3	Negligible	Negligible	No obvious cracks or holes were identified within the willow tree and so T3 remained as negligible for bat roosting potential.

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T4	Negligible	Low	<p>T4 was located on the opposite the Great Stour River where access was not provided. The tree was surveyed using binoculars however only the north, east and west facing aspects of the tree could be reviewed. As a result, T4 has been assessed as offering low potential for roosting bats because there could be potential roosting features for bats on the south facing aspect of the tree.</p>
T5	Negligible	Low	<p>T5 was located on the opposite the Great Stour River where access was not provided. The tree was surveyed using binoculars however only the north, east and west facing aspects of the tree could be reviewed. As a result, T5 has been assessed as offering low potential for roosting bats because there could be potential roosting features for bats on the south facing aspect of the tree.</p>
T6	Low	Low	<p>T6 was located on the opposite the Great Stour River where access was not provided. The tree was surveyed using binoculars however only the north, east and west facing aspects of the tree could be reviewed. As a result, T6 has been assessed as offering low potential for roosting bats because there could be potential roosting features for bats on the south facing aspect of the tree.</p>

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T7	Low to moderate	Low	T7 was located on the opposite the Great Stour River where access was not provided. The tree was surveyed using binoculars however only the north, east and west facing aspects of the tree could be reviewed. As a result, T7 has been assessed as offering low potential for roosting bats because there could be potential roosting features for bats on the south facing aspect of the tree.
T8	Negligible	Low	T8 was located on the opposite the Great Stour River where access was not provided. The tree was surveyed using binoculars however only the north, east and west facing aspects of the tree could be reviewed. As a result, T8 has been assessed as offering low potential for roosting bats because there could be potential roosting features for bats on the south facing aspect of the tree.
T9	Negligible	Low	Access to this land parcel was not granted and so T9 could not be surveyed. As a result, this T9 has been listed as low potential and should be surveyed by a suitably experienced ecologist prior to felling.

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T10	Moderate	Moderate	Access to this land parcel was not granted and so T10 could not be surveyed. As a result, this T10 has been listed as moderate potential, as per the previous survey findings, and should be surveyed by a suitably experienced ecologist prior to felling.
T11	Negligible	Moderate	T11 is a large ash tree with ash dieback. T11 had multiple crevices in the tree limbs in the form of gaps in the form of fissures and holes. The tree was assessed as offering moderate potential to support roosting bats.
T12	Low	Low	The row of ash trees along the A28 road, labelled as T12, were still ivy-cladded and so the surveyor's view of the trees was obscured. As a result, T12 remained as offering low potential to support roosting bats.
T13	Negligible	Negligible	T13 had no obvious potential roosting features for bats and so T13 remained as negligible for roosting bats.
T14	Negligible	Negligible	T14 had no obvious potential roosting features for bats and so T14 remained as negligible for roosting bats.
T15	Negligible	Moderate	Two potential holes were recorded on the T15 trunk. T15 should be surveyed further either by ladder or climbing, if safe to do so, to assess whether the holes lead to cavities in the trunk. As a result, T15 was assessed as offering moderate potential to support roosting bats.

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T16	Low	Negligible	T16 had no obvious potential roosting features for bats and so T16 remained as negligible for roosting bats.
T17	Negligible to Low	Low	T17 was still ivy-cladded and so the surveyor's view of the trees was obscured. As a result, T17 remained as offering low potential to support roosting bats.
T18	Negligible to Low	Low	T18 was still ivy-cladded and so the surveyor's view of the trees was obscured. As a result, T18 remained as offering low potential to support roosting bats.
T19	Negligible to Low	Low	T19 was still ivy-cladded and so the surveyor's view of the trees was obscured. As a result, T19 remained as offering low potential to support roosting bats.
T20	Negligible	Negligible	T20 had no obvious potential roosting features and so T20 remained as negligible for roosting bats.
T21	Not previously assessed	Moderate	T21 had multiple potential roosting features for bats in the form of multiple holes in the tree trunk. T21 should be surveyed further either by ladder or climbing, if safe to do so, to assess whether the holes lead to cavities in the trunk. As a result, T21 was assessed as offering moderate potential to support roosting bats.

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T22	Not previously assessed	Moderate	A row of two conifer trees and one poplar tree (T22) all had at least one obvious hole within the tree trunk. As a result, T22 was assessed as offering moderate potential to support roosting bats.
T23	Not previously assessed	Low to Moderate	Several trees within this row of ash trees were ivy cladded and one tree had an obvious hole within the trunk that could have led to a cavity within the trunk. As a result, T23 was assessed as offering low to moderate potential to support roosting bats.
T24	Not previously Assessed.	Low	Several trees within this row of trees were ivy cladded so the surveyor's view of the trees was obscured. As a result, T24 was assessed as offering low potential to support roosting bats.

High Value: Category 1

- 3.18 One tree, T1, within the Site Area was considered to have high potential for roosting bats.

Moderate Value: Category 2

- 3.19 Six trees, T2, T10, T11, T15, T21 and T22, and one group of trees, T23, within the Site Area were considered to have moderate potential for roosting bats.

Low Value: Category 1

- 3.20 Nine trees, T4, T5, T6, T7, T8, T9, T17, T18 and T19, and two groups of trees, T12 and T24, within the Site Area were considered to have low potential for roosting bats.

No Value: Category 0

- 3.21 All remaining trees, T3, T13, T14, T16 and T20, within the Site Area were considered to have negligible potential to support roosting bats.

Survey Area

- 3.22 The PRA was also carried out on trees that were outside of the Site Area but inside the Survey Area. Trees outside of the Site Area but within the Survey Area that were identified as offering low to high potential to support roosting bats will be the responsibility of the Land at Sturry developers.
- 3.23 The results are presented in table 3.2 below:

Table 3.2: Tree Assessment Summary

Tree/Group Number	Roost Potential in 2017 and 2019 (Amey 2018, 2019)	Roost Potential in 2022 (Phlorum)	Survey Findings in 2022
T25	Not previously Assessed.	Low	T25 was ivy-cladded and so the surveyor's view of the trees was obscured. As a result, T25 was assessed as offering low potential to support roosting bats.
T26	Not previously Assessed.	Moderate	T26 is a large oak tree with loose bark sheets and broken limbs, both features that provide potential roosting features for bats. T26 was assessed as offering moderate potential to support roosting bats.
T27	Not previously Assessed.	Moderate	T27 is a large oak tree with broken limbs that provided potential roosting features for bats. T27 was assessed as offering moderate potential to support roosting bats.

Moderate Value: Category 2

- 3.24 Two trees, T26 and T27, outside of the Site Area but within the Survey Area were considered to have moderate potential for roosting bats.

Low Value: Category 1

- 3.25 One tree, T25, outside the Site Area but within the Survey Area was considered to have low potential for roosting bats.

4. Discussion and Recommendations

- 4.1 The Survey Area is located at the A28 Sturry Link Road in Sturry, Kent, CT2 0AY. The Survey Area extended over approximately 14.7 hectares (ha) covering land associated with the A28 Sturry Link Road scheme (Planning ref: CA/21/01854) and the southern region of the Land at Sturry (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.
- 4.2 The Client, Kent County Council, have planning permission to construct the north-south alignment of Sturry Link Road between 2024 and 2026 from the A28 Sturry Road south of the Great Stour River close to the Southern Water Canterbury Wastewater Treatment Works in the southwest up to the roundabout within the Land at Sturry site, north of the Canterbury to Ramsgate railway line.
- 4.3 A review of previous reports found the following:
- 🌿 T1 to T12 were assessed by Amey in 2015 for bat roosting potential. Of the twelve trees that were assessed, Amey (2015) found there to be one tree offering high potential, one tree offering moderate to high potential, one tree offering moderate potential, one tree offering low to moderate potential, two trees offering low potential and five trees offering negligible potential to support roosting bats. See Figure 3 in Appendix E for locations.
 - 🌿 Bat activity transect surveys carried out within the Site Area by Bioscan (UK) Ltd in 2017 also revealed there to be common pipistrelles (*Pipistrellus pipistrellus*), soprano pipistrelles (*Pipistrellus pygmaeus*), Nathusius pipistrelle (*Pipistrellus nathusii*). *Myotis* species and noctules (*Nyctalus noctule*) to be commuting and foraging within the Site Area.
 - 🌿 T13 to T20 were assessed by Amey in 2017 (Amey 2018) and reassessed in 2019, for bat roosting potential. Amey (2018) found there to be one tree offering low potential, three trees offering negligible to low potential and four trees offering negligible potential to support roosting bats. See Figure 3 in Appendix E for locations.
- 4.4 Of the 24 trees and groups of trees assessed within the Site Area, one tree had high potential, six trees and one group of trees had moderate potential, and nine trees and two groups of trees had low potential to support roosting bats. The remaining five trees were assessed as having negligible potential to support roosting bats. See Figure 3 in Appendix E for tree locations.
- 4.5 It is recommended that a series of at least two bat emergence/re-entry surveys are carried out for trees assessed as offering moderate potential. A series of three bat emergence/re-entry surveys should be carried out for tree T1, which was assessed as offering high potential. The results of these surveys will determine whether a licence is required for these removal works and inform any required mitigation.

- 4.6 Alternatively, if these trees are suitable and safe to climb, an aerial tree climb assessment can be carried out on these trees. A tree climbing assessment can be carried out any time of year. However, if a roost is confirmed then a series of bat activities surveys will be required prior to a licence being obtained if the tree is to be felled.
- 4.7 It is recommended that a suitably experienced ecologist is present for the soft felling of trees assessed as offering low potential to support roosting bats.
- 4.8 If bats are found during the tree works, within any trees on the site that are to be removed or reduced, activities should cease immediately, and advice sought from the suitably experienced ecologist.
- 4.9 Within the Survey Area but outside of the Site Area, one tree was assessed as having low potential to support roosting bats and two trees were assessed as having moderate potential to support roosting bats. It is understood that trees within the Survey Area but outside of the Site Area will be the responsibility of the Land at Sturry developers. See Figure 3 in Appendix E for tree locations.
- 4.10 It is recommended that bat boxes should be installed within the Site Area to provide additional roosting opportunities prior to any trees being felled.
- 4.11 Due to the potential for trees that are being retained to support bat roosts, and the site and surrounding area's potential to support foraging bats, lighting must be prevented from spilling onto vegetation, especially woodland and mature trees.
- 4.12 Details regarding lighting measures are provided below.

Bat Emergence/Re-Entry Surveys


- 4.13 Bats receive protection under The Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended).
- 4.14 Due to trees T4, T5, T6, T7, T8, T9, T12, T17, T18, T19 and T24 offering low potential suitability to support roosting bats, it is recommended that these trees are soft felled under supervision by a suitably experienced ecologist.
- 4.15 If bats are found during the tree works, within any trees on the site that are to be removed or reduced or impacted, activities should cease immediately, and advice sought from the suitably qualified ecologist.
- 4.16 Due to trees T2, T10, T11, T15, T21, T22 and T23 offering moderate potential suitability to support roosting bats, a series of two emergence/re-entry surveys are recommended for each tree prior to works starting. Surveys can only be undertaken during the active period for bats taken to run between May and September, with at least one between mid-May and August. It is recommended that two surveyors will be needed per tree.
- 4.17 If a roost is discovered in any of these trees during either of the two surveys, it is likely that a third emergence/re-entry survey will be needed for this tree to inform a licence application.

- 4.18 Due to tree T1 offering high potential suitability to support roosting bats, a series of three emergence/re-entry surveys are recommended for this tree prior to works starting. Surveys can only be undertaken during the active period for bats taken to run between May and September, with at least two between mid-May and August. It is recommended that two surveyors will be needed.
- 4.19 Where a roost is likely to be impacted by the removal works, and where avoidance is not possible, it may be necessary to obtain a European Protected Species Mitigation (EPSM) Licence before the removal works can proceed and to complete any necessary mitigation.
- 4.20 Such a licence would need to be obtained from Natural England once full planning permission is in place. The application will require the drafting of a detailed mitigation strategy including timing and felling methods in addition to the mitigation measures proposed. Natural England currently require 30 working days to determine a licence application.
- 4.21 As stated above, aerial tree climbing surveys can be carried out which may eliminate the need for some trees to have activity surveys, if they are safe to climb and no bat roosts are found.

Habitat Enhancement

- 4.22 Additional roosting opportunities should be incorporated into the final design to enhance the site for roosting bats post works. This should include the installation of bat boxes, such as the Schwegler 1FF bat box, located on mature trees around the site boundaries and/or the new building. These should be orientated with a south, southeast, or southwest aspect and located at least 3m from ground level.

Bats and Lighting

- 4.23 Different species of bat have been found to react differently to night-time lighting. However, research has found that generally all species of bats are sensitive to artificial lighting and that excessive lighting can delay bats from emerging, thus shortening the time available for foraging, as well as causing individuals to move away from suitable foraging grounds or roost sites to alternative dark areas (Jones, 2000). Bats can also become isolated from their foraging grounds if the linear features they use for commuting are suddenly illuminated, creating a light barrier (Fure, 2006).
- 4.24 New development provides the opportunity to enhance the site's value for foraging bats and to minimise indirect impacts from lighting associated with the new development. This can be achieved by following accepted best practice (Institute of Ecology and Environmental Management 2006, Institute of Lighting Professionals 2018):
 -  The level of any artificial lighting including flood lighting should be kept to a minimum;

- LED lights are a preferred option to low pressure sodium lights or high pressure sodium or mercury lamps. LED lights do not emit UV radiation, towards which some insects are attracted, drawing them away from bat foraging areas in the surrounding landscape;
- All lights should be directed at a low angle with minimal light spillage wherever possible;
- Ideally areas of woodland and trees should be kept dark, preferably at bat emergence (0-1 hour after sunset) and during peak bat activity periods (e.g. 1.5 hours after sunset and 1.5 hours before sunrise);
- Artificial lighting should not directly illuminate any potential bat commuting areas such as hedgerow and tree lines. Similarly, any newly planted linear features or buffer areas should not be directly lit; and
- If security lights are required, then they will be set on a Passive Infrared (PIR) sensor and timer so that the light is only emitted for the short time period required.

5. Conclusions

- 5.1 Phlorum Ltd was commissioned by Project Centre, on behalf of Kent County Council, to carry out a Preliminary Roost Assessment (PRA) in respect to bats in trees for the A28 Sturry Link Road Scheme. The PRA covered land associated with the A28 Sturry Link Road planning application (Planning ref: CA/21/01854) and the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.
- 5.2 For this PRA report a distinction has been made between the larger Survey Area and the smaller Site Area (the smaller Site Area being the development area for the new Sturry Link Road scheme). The Survey Area extended over approximately 14.7 hectares (ha) covering the Site Area for the proposed A28 Sturry Link Road scheme (Planning ref: CA/21/01854) and the southern region of the Land at Sturry planning application (Planning ref: CA/20/02826) where there is an overlap between the two schemes, or the land is within the Zone of Influence for A28 Sturry Link Road.
- 5.3 Within the Site Area, T1 is listed as high potential for roosting bats and so it is recommended that a series of three emergence/re-entry surveys are carried out for this tree prior to its removal, to determine whether roosting bats are using the tree.
- 5.4 Within the Site Area, T2, T10, T11, T15, T21, T22 and T23 are listed as moderate potential for roosting bats and so it is recommended that a series of two emergence/re-entry surveys are carried out for each tree prior to their removal, to determine whether roosting bats are using these trees.
- 5.5 Alternatively, aerial tree climbing surveys could be carried out for trees with moderate or high potential for roosting bats, if they are safe and suitable to climb. Depending on the findings, this may eliminate the need for further activity surveys.
- 5.6 Within the Site Area T4, T5, T6, T7, T8, T9, T12, T17, T18, T19 and T24 are listed as low potential to support roosting bats and so it is recommended that these trees are soft felled under supervision by a suitably experienced ecologist.
- 5.7 No further bat surveys are required for the remaining trees, T3, T13, T14, T16 and T20, within the Site Area.
- 5.8 If bats are found during the tree works, within any trees on the site that are to be removed or reduced, activities should cease immediately, and advice sought from the suitably qualified ecologist.

- 5.9 Within the Survey Area, it is recommended that a series of two emergence/re-entry surveys are carried out for T26 and T27 prior to their removal, if they are to be removed, to determine whether roosting bats are using these trees. It is also recommended that T25 is soft felled under supervision by a suitably experienced ecologist. It is understood that this will be the responsibility of the Land at Sturry developers.
- 5.10 Bat boxes should be installed to provide additional roosting opportunities on the site, either on mature trees or the new building, and lighting should be controlled to minimise impact on any potential roosting or foraging bats.

6. References

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- 🌿 Phlorum (2022). *Preliminary Ecological Appraisal: Land at A28 Sturry Link Road*. Unpublished report by Phlorum Ltd.
- 🌿 Schwegler (2016). Bird and Nature Conservation Products [on-line]. Available from: http://www.schwegler-natur.de/pdf/Katalog/CatalogueEN_HQ.pdf.




Appendices



Appendix A

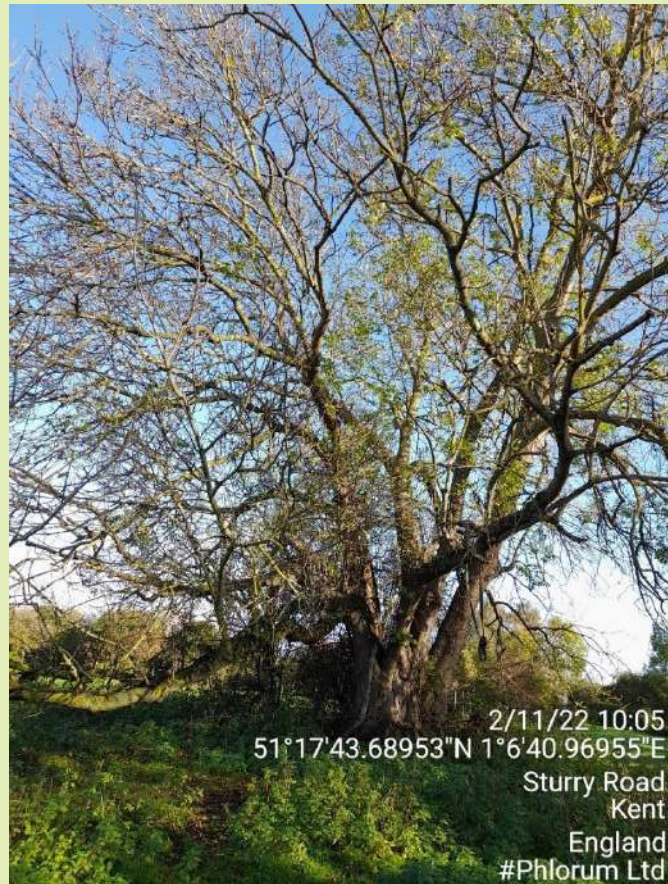
Photographs

Photographs

Photo No.	Feature (Target Note No.)	Photograph of Feature
1	T1 that could not be accessed up close to be assessed properly.	 <p data-bbox="954 1238 1378 1447">2/11/22 14:43 51°17'55.71466"N 1°6'41.79242"E Unnamed Road Sturry Kent England #Phlorum Ltd</p>

2

T11. A large ash assessed as offering moderate potential to support roosting bats.



A hole in the tree limb of T11.



4

T15, a silver birch tree assessed as offering moderate potential to support roosting bats because of the presence of two holes potentially leading to cavities within the tree trunk.



Trees on the opposite of the Great Stour River that could not be accessed up close to be assessed properly.



6

T21, an ash tree with several potential holes leading to cavities within the tree trunk.



T22, a row of two conifer trees and a poplar tree offering moderate potential to support roosting bats because of the presence of holes within the tree trunks that could potentially lead to cavities.



8

A hole within one conifer in T22 that could lead to a cavity within the tree trunk.



T23, a row of ash trees assessed as offering low to moderate potential to support roosting bats.



10

A potential hole leading to a cavity within an ash tree within T23.



T24, ivy cladded group of trees along Shalloak road assessed as offering low potential to support roosting bats.



12

T25, ivy cladded tree assessed as offering low potential to support roosting bats.



T26, a large oak tree with loose bark sheets and broken tree limbs, assessed as offering moderate potential to support roosting bats.



14

T27, a large oak tree (at rear) with a broken tree limb assessed as offering moderate potential to support roosting bats.



Appendix B

Site Area and Survey Area

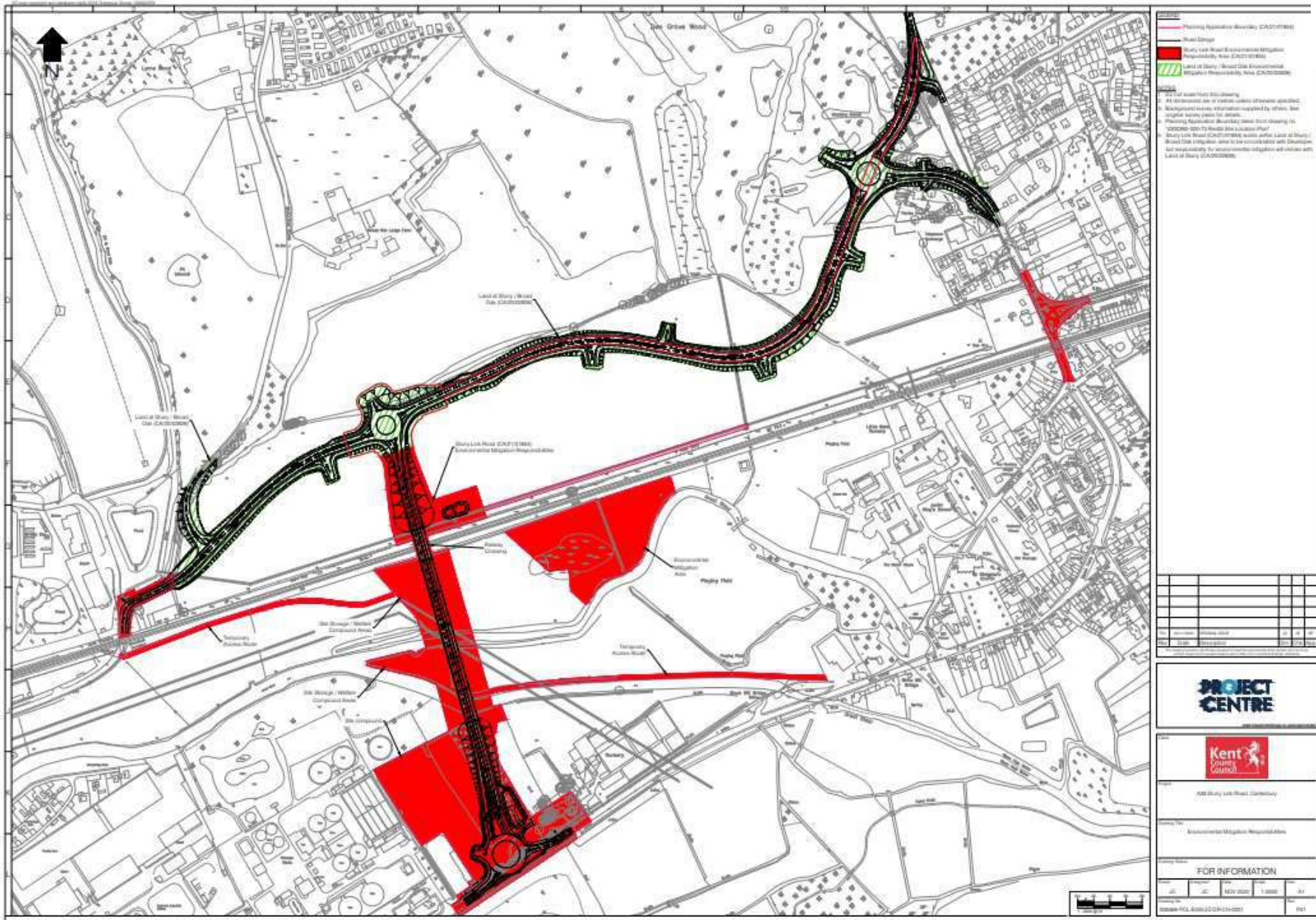


Figure 1: The Site Area

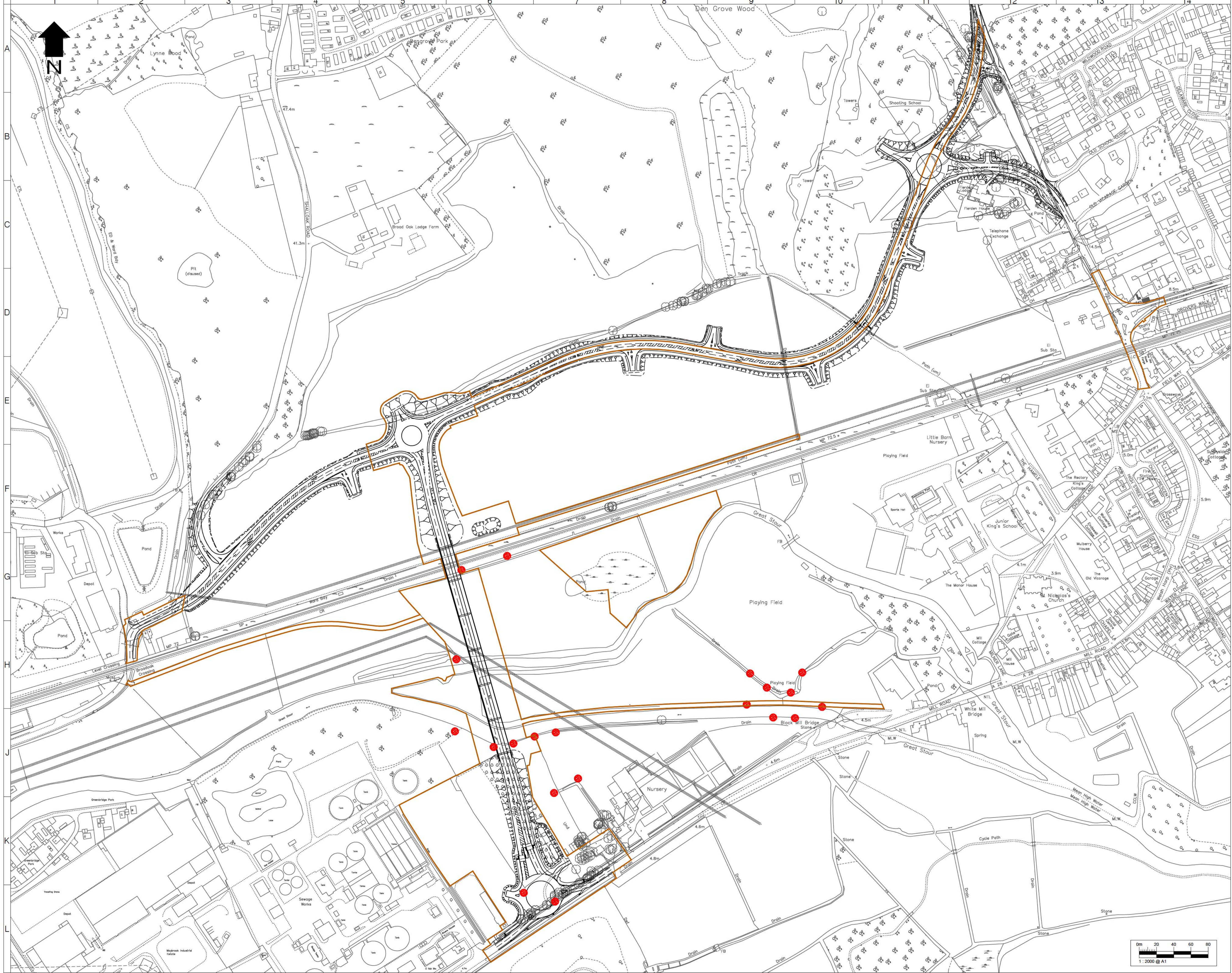
Drawn by: EP
 On the: 19/12/2022
 Not to Scale
 Ref: 11112



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Appendix C

Trees to Potentially be Impacted by the A28 Sturry Link Road Scheme



- LEGEND**
- Survey Extents / Planning Application Boundary
 - Trees with Bat Potential
 - Road Design
- NOTES**
1. Do not scale from this drawing.
 2. All dimensions are in metres unless otherwise specified.
 3. Background survey information supplied by others. See original survey plans for details.
 4. Planning Application Boundary taken from drawing no. '4300392-000-73 Rev05 Site Location Plan'
 5. Trees with Bat potential were identified in 2017 Survey by Arney (Figure 11.5 of Environmental Statement).

Rev	Date	Description	Drn	Chk	App
P01	09/08/2022	ORIGINAL ISSUE	JC	RT	JE

PROJECT CENTRE

www.marstonholdings.co.uk/projectcentre

Client



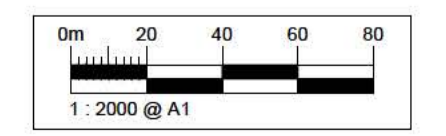
Project
A28 Sturry Link Road, Canterbury

Drawing Title
Tree Inspection Survey for Bats
Survey Extents Plan

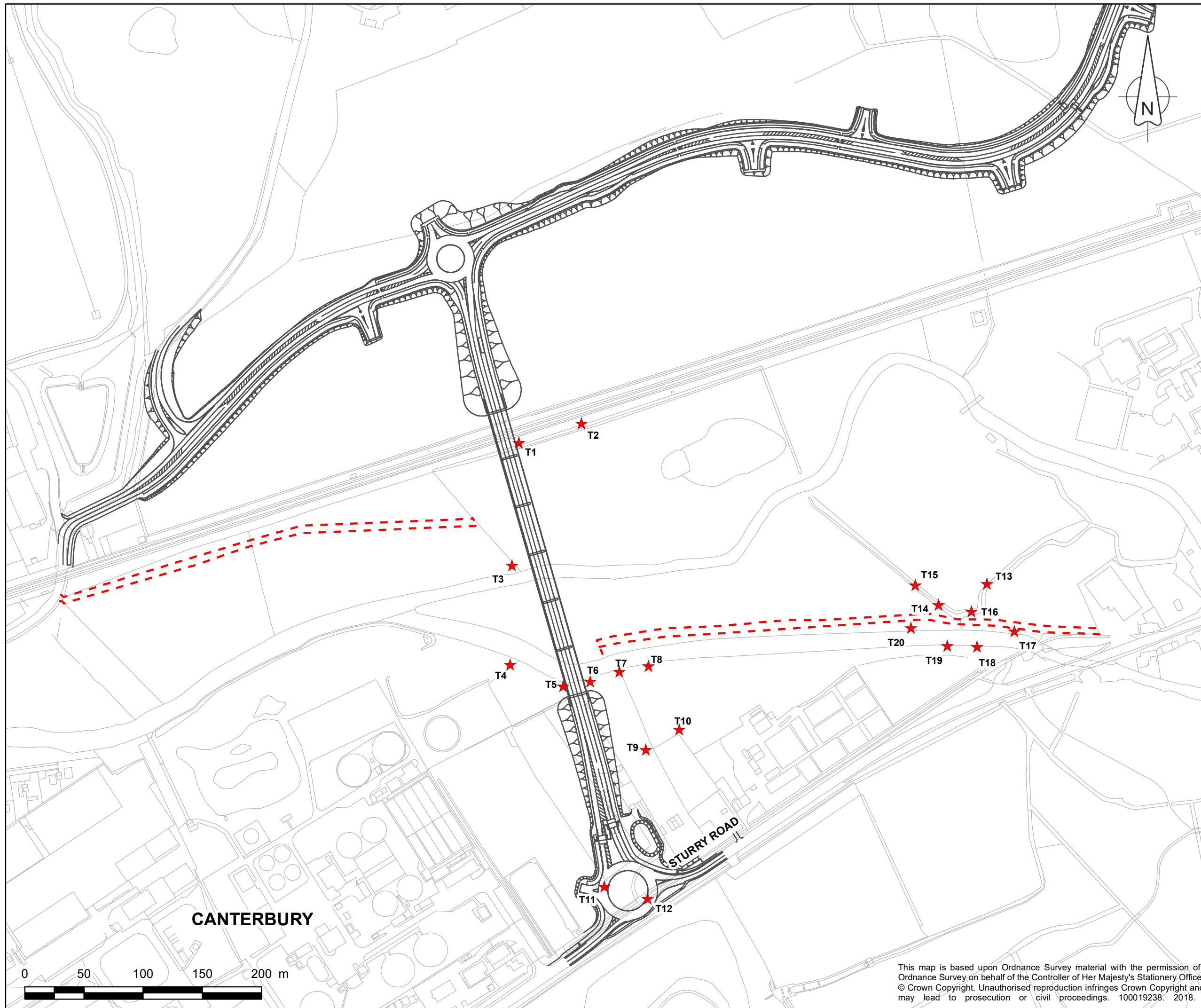
Drawing Status
FOR INFORMATION

Drawn	Designed	Date	Scale	Size
JC	JC	AUG 2022	1:2000	A1

Drawing No. 008469-PCL-VES-ZZ-DR-CH-0004 Rev P01



Appendix D
Amey's Preliminary Tree Roost Assessment Map for
2017 and 2019



- Legend**
- Sturry Link Road
 - - - Construction Access Route
 - ★ Trees with Bat Potential

- Level of Potential (May 2017)**
- T1 High
 - T2 Moderate to High
 - T3 Negligible
 - T4 Negligible
 - T5 Negligible
 - T6 Low
 - T7 Low to moderate
 - T8 Negligible
 - T9 Negligible
 - T10 Moderate
 - T11 Negligible
 - T12 Low (Group)

- Level of Potential (August 2019)**
- T13 Negligible
 - T14 Negligible
 - T15 Negligible
 - T16 Low
 - T17 Negligible to low
 - T18 Negligible to low
 - T19 Negligible to low
 - T20 Negligible

Rev	Revision Details	Chkd	Appd	Date
Drawn : JB				Preliminary
Design : BH				For Comment
Chkd : AHJ				For tender
Appd : HC				For construction
Date : September 2019				As constructed
				Other



Project Name :
**A28 Sturry Link Road
 Canterbury**

Drawing Title :
**Bat Tree Inspection
 Survey Results**

Original Drawing Size : A3
Scale : 1:3,000
Dimensions :






Drawing No Figure A11.5	Rev -
----------------------------	----------

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Appendix E

Preliminary Tree Roost Assessment Map 2022

Legend

-  **Survey Boundary**
-  **Tree with Negligible Potential**
Points
-  **Tree with Low Potential**
Points
-  **Tree with Moderate Potential**
Points
-  **Tree with High Potential**
Points



ARB Study Link Road Corridor

Phase 1 Habitat Survey
Biology Baseline Plan

FOR INFORMATION			

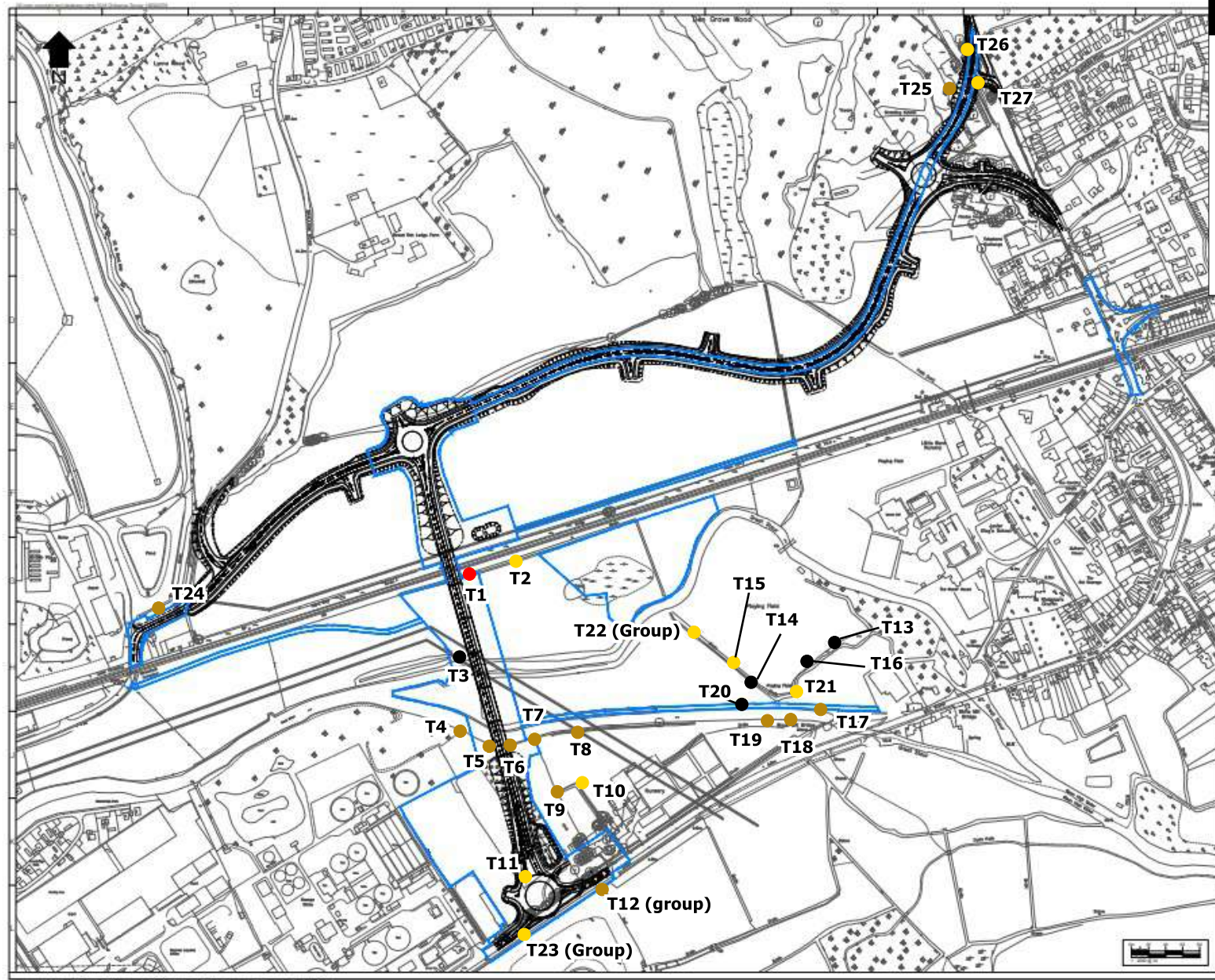


Figure 3: A28 Sturry Link Road PRA map

Drawn by: NA
On the: 06/02/2023
Not to Scale
Ref: 11112



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Appendix F Legislation

Legislation

This section contains information pertaining to the legislation and planning policy applicable in Britain. This information is not applicable to Northern Ireland, the Republic of Ireland, the Isle of Man, or the Channel Islands. Information contained in the following appendix is provided for guidance only.






Species

The objective of the EC Habitats Directive¹ is to conserve plants and animals which are considered to be rare across Europe. The Directive is transposed into UK law by The Conservation of Habitats and Species (Amendment) (UK Exit) Regulations 2019 (formerly The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended)).

The Wildlife and Countryside Act 1981 (as amended) implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and also implements the obligations set out for species protection from the Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.


Various amendments have been made since the Wildlife & Countryside Act came into force in 1981. Further details pertaining to alterations of the Act can be found on the following website: www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000) and Nature Conservation (Scotland) Act 2004.

There are a number of other legislative Acts affording protection to species and habitats. These include:

-  Countryside and Rights of Way (CRoW) Act 2000;
-  Deer Act 1991;
-  Natural Environment & Rural Communities (NERC) Act 2006;
-  Protection of Badgers Act 1992; and
-  Wild Mammals (Protection) Act 1996.

Bats

Bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). This act protects individuals from:

-  intentional or reckless disturbance (at any level);

¹ Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- intentional or reckless obstruction of access to any place of shelter or protection; and
- selling, offering or exposing for sale, possession or transporting for purpose of sale

In addition, all species of bat are fully protected under The Conservation of Habitats and Species Regulations 2010 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- deliberate killing, injuring or capturing of Schedule 2 species (all bats);
- deliberate disturbance of bat species as to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young; and
 - (ii) to hibernate or migrate.
- deliberate disturbance of bat species as to affect significantly the local distribution or abundance of the species;
- damage or destruction of a breeding site or resting place; and
- keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

A European Protected Species Mitigation (EPSM) Licence issued by Natural England will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake activities listed above. A licence is required to allow derogation from the relevant legislation but also to enable appropriate mitigation measures to be put in place and monitored.

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