**PLAN ECO3**

Proposed Habitats

## KEY:

- SITE BOUNDARY
- DEVELOPED LAND; SEALED SURFACE
- VEGETATED GARDEN
- MODIFIED GRASSLAND
- URBAN TREE (RETAINED)
- URBAN TREE (NEW)
- HEDGEROW WITH TREES (RETAINED)
- NATIVE GARDEN HEDGES (CREATED)

N

ECOLOGYSOLUTIONS
Part of the ES Group

Farncombe House
Farncombe Estate | Broadway
Worcestershire | WR12 7LJ

+44(0)1451 870767
info@ecologysolutions.co.uk
[redacted]

10486: PINES HILL
STANSTED MOUNTFITCHET

PLAN ECO3:
POST-DEVELOPMENT
HABITATS

Rev: C

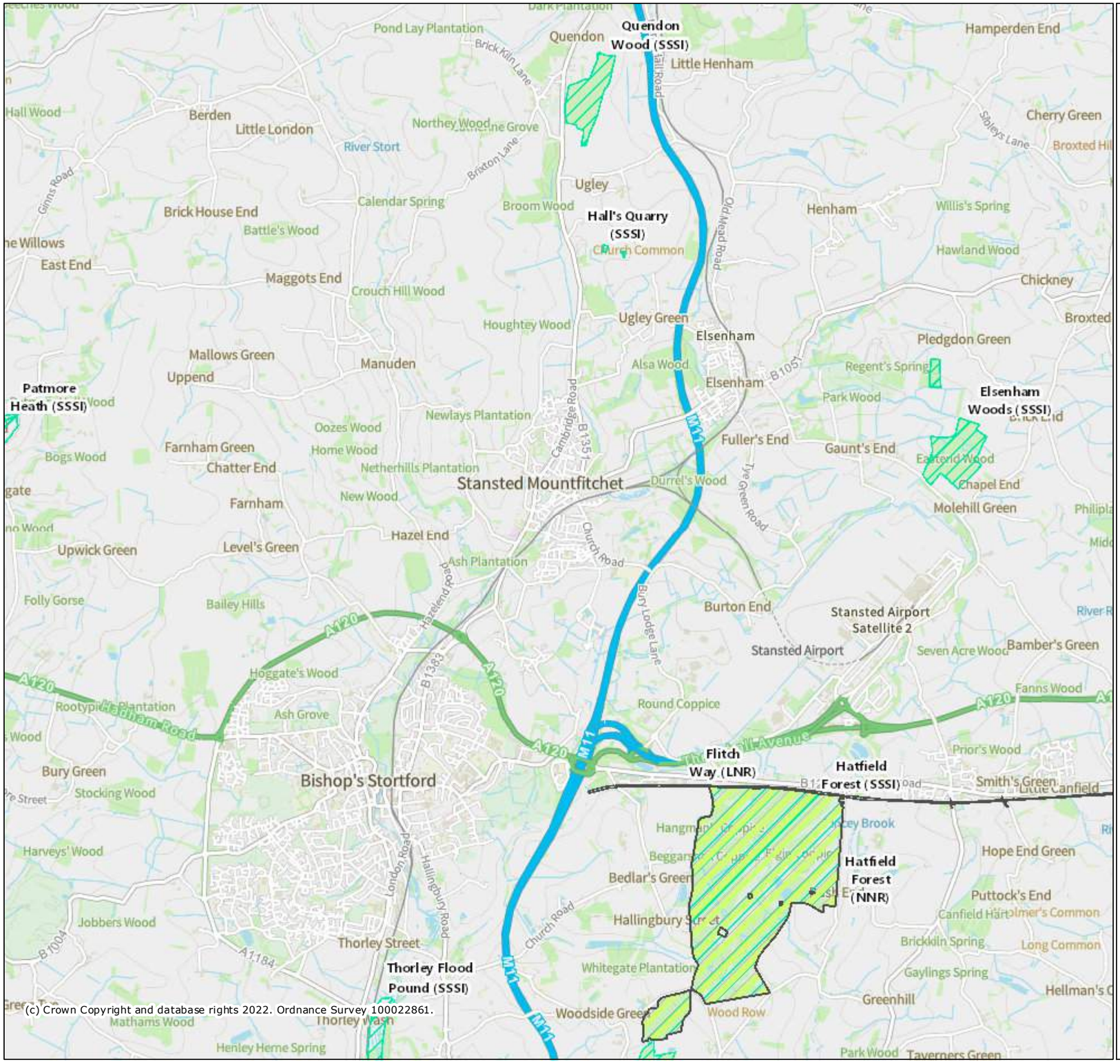
Mar 2023

# APPENDICES

**APPENDIX 1**

Information downloaded from MAGIC

# Magic Map






## Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)

Projection = OSGB36
xmin = 537800
ymin = 217700
xmax = 564700
ymax = 231200

0 1 2
km

# APPENDIX 2

Detailed Results of Bat Activity Surveys

# 10486 Pines Hill bat results/report

The site was assessed for its suitability to support bat species in Spring 2022. As part of this survey, assessment of all trees on site was undertaken in addition to an evaluation of the quality of habitats present within site for foraging and commuting bats.

All field surveys were undertaken within the site with regard to best practice guidelines issued by the Joint Nature Conservation Committee (2004) and the Bat Conservation Trust (20162).

*Activity and Automated (static) Surveys*

Due to the results of the initial site assessment which categorised the site as having low suitability for foraging and commuting bats in relation to the BCT guidance, seasonal bat activity surveys were undertaken between May – October 2022. Surveys involved surveyors walking dedicated transects across the site, recording bat data (using EMT2 detectors) and noting visual observations. Evening bat transect surveys commenced approximately 15 minutes before sunset and continued for a minimum of 2 hours after sunset. Dawn activity surveys commenced approximately 2 hours before sunrise and continued until just after sunrise.

During each survey, static SongMeter4 FS (SM4) and SongMeter MINI bat detectors were also deployed within strategic locations across the site. The detectors were left to record for a minimum of five nights.

This data was subsequently analysed using Kaleidoscope Pro bat sound analysis software. This survey method aimed to identify the level of foraging, the species present within the site and any areas of potentially high importance for foraging / commuting bats. The dates and weather conditions for the activity surveys are outlined in **Table 1**.

| Date | Survey type | Timing | Weather conditions |
|---|---|---|---|
| 30/05/22 | Dusk activity | 20:54-23:06 | 11C, clear, dry, light winds |
| 08/08/22 | Dusk activity | 20:24-22:12 | 23C, clear, dry, light winds, |
| 24/10/22 | Dusk activity | 17:29-19:38 | 14C, mostly cloudy, dry, light winds |

**Table 1:** Weather conditions for 2022 transect surveys

Results

*Activity results*

The application site offers potential foraging and commuting opportunities for bats, and as such seasonal activity surveys were undertaken between May and October 2022. These involved bat activity surveys and static monitoring surveys, in line with the relevant methodologies and timings outlined in the aforementioned sections above.

The results of these surveys are outlined below, as well as being summarised in monthly tables. It is important to note that the detectors record only the number of passes by each species of bat, therefore even a high number of passes could relate to a single or small number of bats foraging for a sustained period.

*May 2022*

Results for the May dusk transect survey are summarised in **Table 2** below. During the survey, bat activity was concentrated around the site's peripheral tree lines. Registrations were mainly limited to Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus* with one pass by a Noctule *Nyctalus noctula* recorded.

| | Number of Registrations | |
|---|---|---|
| Species | Registrations per | First Registration After Sunset (20:36) |
| Common Pipistrelle | 10 | 21 minutes |
| Soprano Pipistrelle | 12 | 47 minutes |
| Noctule | 1 | 139 minutes |
| **Total** | **23** | |

**Table 2:** Results for May transect survey

Following the transect surveys, two static detectors (SM4-S and SM4-T) were deployed for a period of eight consecutive nights. The results from each individual static detector are summarised in the **Table 3** below with average nightly registrations per static detectors displayed in brackets**.** Activity was generally higher in the west of the site, however total registrations were still relatively low average around 200 per night.

Static detectors SM4-S was located in a patch of scrub in the centre of the western section of the application site. Static detector SM4-T was located in a small tree to the east of the application site.

| | Number of Registrations (average nightly totals) | | |
|---|---|---|---|
| Species | **SM4-S** | **SM4-T** | **Total** |
| Common Pipistrelle | 1127 (40.9) | 109 (13.6) | **1236 (154.5)** |
| Soprano Pipistrelle | 434 (54.3) | 41 (5.1) | **475 (59.4)** |
| Noctule | 13 (1.6) | 29 (3.6) | **42 (5.3)** |
| Brown Long-eared | 10 (1.3) | 4 (0.5) | **14 (1.8)** |
| Myotis species | 2 (0.3) | 8 (1) | **10 (1.3)** |
| Serotine | 4 (0.5) | 2 (0.3) | **6 (0.8)** |
| **Total** | **1590 (198.8)** | **193 (24.1)** | **1783 (222.9)** |
| **Number of Nights** | **8** | | |

**Table 3:** May static detector results

*August 2022*

Results for the August dusk transect survey are summarised in **Table 4** below. During the transect survey bat activity was mostly concentrated around the scrub and treelines in the western section of the site with minor activity occurring to the east. Only low numbers of common and widespread species were recorded.

| | Number of Registrations | |
|---|---|---|
| Species | Ipad 28 | First Registration After Sunset (20:36) |
| Common Pipistrelle | 35 | 6 minutes |
| Soprano Pipistrelle | 8 | 18 minutes |
| **Total** | **43** | |

**Table 4:** Results for August transect survey

Following the transect surveys, two static detectors (SM4-FM and SM4-Q) were deployed for a period of eleven consecutive nights. The results from each individual static detector are summarised in the **Table 5** below with average nightly registrations per static detectors displayed in brackets**.** As with the previous survey, activity levels were relatively low with an average nightly total of registrations for both detectors between 150 and 200. Barbastelle was recorded for the first time, although with only 13 total registrations between the two detectors.

Static detector SM4-Q was located in an area of scrub on the eastern boundary. Static detector SM4-FM was located in a small tree in the western section of the application site.

| | Number of Registrations (average nightly totals) | | |
|---|---|---|---|
| Species | **SM4-4FM** | **SM4-Q** | **Total** |
| Common Pipistrelle | 1231 (111.9) | 1320 (120) | **2551 (231.9)** |
| Soprano Pipistrelle | 768 (69.8) | 339 (30.8) | **1107 (100.6)** |
| Brown Long-eared | 63 (5.7) | 7 (0.6) | **70 (6.4)** |
| Noctule | 23 (2.1) | 12 (1.1) | **35 (3.2)** |
| Myotis species | 11 (1) | 3 (0.3) | **14 (1.3)** |
| Barbastelle | 10 (0.9) | 3 (0.3) | **13 (1.2)** |
| Serotine | 6 (0.5) | 0 | **6 (0.5)** |
| **Total** | **2112 (192)** | **1684 (153.1)** | **3796 (345.1)** |
| **Number of Nights** | **11** | | |

**Table 5:** August static detector results

*October 2022*

Results for the October dusk transect survey are summarised in **Table 6** below. During the survey, bat activity was concentrated along the application site's peripheral treelines. Registrations were limited to Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*.

| | Number of Registrations | |
|---|---|---|
| Species | Ipad 2 | First Registration After Sunset (17:46) |
| Common Pipistrelle | 36 | 23 minutes |
| Soprano Pipistrelle | 18 | 38 minutes |
| **Total** | **54** | |

**Table 6:** Results for October transect survey

Following the activity surveys, two static detectors (SM4-H and SM4-MA) were deployed for a period of seven consecutive nights. The results from each individual static detector are summarised in **Table 7** below with average nightly registrations per static detectors displayed in brackets**.** Species recorded were mainly limited to Common Pipistrelle and Soprano Pipistrelle, with minor occurrence of infrequent registrations for a small number of species. Activity levels were the lowest recorded throughout the season with an average of around 100 registrations per night for the western detector, and only 15 for the detector to the east.

Static detector SM4-A was located in an area of scrub on the eastern boundary. Static detector SM4-H was located in a small tree in the western section of the application site.

| | Number of Registrations | | |
|---|---|---|---|
| Species | **SM4-H** | **SM4-MA** | **Total** |
| Soprano Pipistrelle | 528 (75.4) | 23 (3.3) | **551 (78.7)** |
| Common Pipistrelle | 129 (18.4) | 72 (10.3) | **201 (28.7)** |
| Brown Long-eared | 26 (3.7) | 4 (0.6) | **30 (4.3)** |
| Noctule | 11 (1.6) | 0 | **11 (1.6)** |
| Myotis species | 4 (0.6) | 2 (0.3) | **6 (0.9)** |
| **Total** | **698 (99.7)** | **101 (14.4)** | **799 (114.1)** |
| **Number of Nights** | **7** | | |

**Table 7:** Results for October dusk transect survey

Summary

The majority of bat activity was recorded within the western parcel of the site and surrounding tree lines and scrub, with further hotspots located along the eastern boundary of the application site in particular around the adjacent scrub and treelines.

The species assemblage recorded during the activity surveys revealed that the site is in use by a low number of mostly common and widespread species. The most commonly recorded species during the bat activity transect surveys was the Common Pipistrelle with a peak count of 36 registrations during the October survey. The second most recorded bat species was Soprano Pipistrelle with a peak count of 18 registrations during the same survey.

The results of the static monitoring surveys mirror those results of the transects surveys, indicating that the site is predominantly utilised by mostly common and widespread species, specifically Common and Soprano Pipistrelle. Other bat species recorded in markedly lower abundance include: Brown Long-eared Bat *Plecotus auritus,* Serotine, Myotis species, Noctule, and, Barbastrelle *Barbastella barbastellus*.

# APPENDIX 3

Headline Results of Biodiversity Net Gain Metric
Baseline Calculations

## Headline Results

Return to results menu

| | | |
|---|---|---|
| On-site baseline | *Habitat units* | 6.93 |
| | *Hedgerow units* | 0.95 |
| | *River units* | 0.00 |
| On-site post-intervention (Including habitat retention, creation & enhancement) | *Habitat units* | 1.57 |
| | *Hedgerow units* | 1.23 |
| | *River units* | 0.00 |
| On-site net % change (Including habitat retention, creation & enhancement) | *Habitat units* | -77.40% |
| | *Hedgerow units* | 29.76% |
| | *River units* | 0.00% |
| Off-site baseline | *Habitat units* | 6.84 |
| | *Hedgerow units* | 0.00 |
| | *River units* | 0.00 |
| Off-site post-intervention (Including habitat retention, creation & enhancement) | *Habitat units* | 16.26 |
| | *Hedgerow units* | 0.00 |
| | *River units* | 0.00 |
| Total net unit change (including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 4.05 |
| | *Hedgerow units* | 0.28 |
| | *River units* | 0.00 |
| Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement) | *Habitat units* | 58.43% |
| | *Hedgerow units* | 29.76% |
| | *River units* | 0.00% |
| Trading rules Satisfied? | No - Check Trading Summary ▲ | |