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Appendix 7.1: Ecological Appraisal

Client

Bloor Homes

Project

Toton West, Toton, Nottingham

Date

February 2025

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-	Draft	LFR/21.02.25	LFR / 27.02.2025

1.0 INTRODUCTION

- 1.1 The following report has been prepared by FPCR Environment and Design Ltd. (FPCR) on behalf of Bloor Homes and provides details of an Ecological Appraisal undertaken for land at Toton West (hereafter referred to as the 'Site'). The Site measures approximately 19.11 ha and is centred on ordnance survey grid reference SK491 355.

Site Context

- 1.2 The Site is located in lies on the northern edge of Toton in Nottingham. It is bounded by a substation, solar farm and arable land to the north and the urban extent of Toton to the south. To the east is Toton Lane and the proposed Toton East development Site. To the west is Toton railway freight yard. The Site itself encompasses several arable field parcels bounded and delineated by hedgerows, treelines and public footpaths and a small copse of trees.

Development Proposals

- 1.3 The Toton West planning application is seeking outline permission for up to 380 residential dwellings and associated open space and infrastructure.

Scope of Appraisal

- 1.4 This Ecological Appraisal describes the current ecological interest within and around the Site, which has been identified through standard desk- and field-based investigations. It then considers the potential ecological impacts and opportunities for ecological enhancement based on the Illustrative Masterplan (shown as **Appendix A**) in the context of relevant legislation and planning policy. Finally, it identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

2.0 METHODOLOGY

Desktop Study

- 2.1 A Desk Study is an important element of undertaking an initial ecological appraisal of a site proposed for development, enabling the initial collation and review of contextual information, such as designated sites, together with known records of protected and priority species.
- 2.2 The Desk Study completed for this application involved collating biodiversity information from the following sources:
- Nottinghamshire Biological and Geological Record Centre (NBGRC);
 - Derbyshire Biological Records Centre (DBRC) at the Derbyshire Wildlife Trust; and
 - Multi-Agency Geographic Information for the Countryside (MAGIC) website¹.
- 2.3 The search areas were related to the significance of sites and their potential zones of influence², as follows:
- 15km around the Site for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites);
 - 2km around the Site for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs); and
 - 1km around the Site for non-statutory sites of Local or County Importance or statutory sites such as Local Nature Reserves (LNRs) and species records (e.g. protected, or Section 41 NERC species of principal importance and notable species).
- 2.4 Further inspection, using colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk), was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 2.5 Results are shown in **Figure 1a**.

Field Survey

Habitats

- 2.6 An Extended Phase 1 Habitat Survey was undertaken which involved classification of the broad habitat types present using the system published by the UK Joint Nature Conservation Committee³. This comprised a walkover of the Site, mapping (**Figure 2**) and broadly describing the principal habitat types and identifying the dominant plant species present within each habitat type and any invasive weeds (where present). Whilst the plant species lists obtained

¹ www.magic.gov.uk.

² Zone of Influence - the areas and resources that may be affected by the proposed development

³ JNCC 2010. Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7

(**Appendix B**) should not be regarded as exhaustive, sufficient information was obtained to determine broad habitat types.

- 2.7 The walkover took place in August 2024.
- 2.8 Throughout the walkover survey consideration was additionally given to the actual or potential presence of protected species, such as, although not limited to those protected under the Wildlife and Countryside Act 1981 (as amended), the Protection of Badgers Act 1992⁴ and the Conservation of Habitat and Species Regulations 2017 (as amended).

Fauna

Great Crested Newt

- 2.9 As part of the Phase 1 habitat survey any waterbodies within a 500m radius were identified using OS maps and aerial satellite imagery as shown on **Figure 3**.

eDNA Survey

- 2.10 Environmental DNA (eDNA) sampling was undertaken of P1 in the 2023 survey season to determine the presence/absence of GCN in accordance with the Technical Advice Note for field and laboratory sampling of GCN eDNA (WC1067)⁵. This methodology has been approved by Natural England for the determination of GCN presence/absence.
- 2.11 Sampling was undertaken by appropriately licenced ecologists who collected a sample of water from each pond (during suitable weather conditions avoiding heavy rain). Sampling was undertaken using kits obtained from ADAS. The methodology comprised taking samples of agitated water from 20 locations around each pond and mixing thoroughly. 15ml of this water was then placed into each of the six sterile sample tubes containing preservative, precipitates and a DNA sequence that was used for degradation control. All samples were stored in accordance with the protocols provided by the laboratory. The samples were then transported under suitable conditions for analysis. Following analysis, results provided by the laboratory could have one of three outcomes described in **Table 1** below.

Table 1: Description of Possible Results of eDNA Analysis

Result	Description
Positive	A positive result means that eDNA from GCN was detected and they have been present within the water in the 20 days preceding sampling. An eDNA score would be provided indicating the number of positive replicates from a series of twelve.
Negative	DNA from GCN was not detected; in the case of negative samples the DNA extract is further tested for PCR inhibitors and degradation of the sample.
Inconclusive	Controls indicate degradation or inhibition of the sample, therefore the lack of detection of GCN DNA is not conclusive evidence for determining the absence of the species in the sample provided. Degradation can occur through poor storage of the samples or kits and inhibition can occur through unexpected chemicals in the sample.

⁴ The Protection of Badgers Act 1992 (as amended). [Online]. London: HMSO Available from: <http://www.legislation.gov.uk/ukpga/1992/51/contents>

⁵ Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford.

*Roosting Bats*Preliminary Roost Assessment (ground level)

- 2.12 Preliminary Roost Assessments (PRA) were undertaken from ground level, with the aid of binoculars (where appropriate).
- 2.13 During the survey Potential Roosting Features (PRF) for bats such as the following were sought (Based on P16, British Standard 8596:2015 Surveying for bats in trees and woodland, October 2015):
- Natural holes (e.g. knot holes) arising from naturally shed branches or cavities created by branches tearing out from parent stems).
 - Man-made holes (e.g. cavities that have developed from flush cuts or branches previously pruned back to a branch collar).
 - Woodpecker holes.
 - Cracks/splits in stems or branches (horizontal and vertical).
 - Partially detached, loose or bark plates.
 - Cankers (caused by localised bark death) in which cavities have developed.
 - Other hollows or cavities, including butt rots.
 - Compression of forks with occluded bark, forming potential cavities.
 - Crossing stems or branches with suitable roosting space between.
 - Ivy stems with diameters >50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk).
 - Bat or bird boxes.
 - Other suitable places of rest or shelter.
- 2.14 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings, and its location in respect to other features may enhance or reduce the potential value.
- 2.15 Using professional judgement, the ground-based PRA assessment classified any trees identified based upon the presence of suitable features as set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (J., Collins (Bat Conservation Trust), 2023) in which the general bat roost potential groups are defined (refer Table 4.2 of the guidelines) and provided in **Table 2** below.

Table 2: Suitability of trees for bats

Suitability	Description
NONE	Either no potential roost features or highly unlikely to be any.
FAR	Further Assessment Required to establish if Potential Roost Features are present.
PRF	A tree with at least one Potential Roost Feature.

- 2.16 There were no buildings present within the Site.

Foraging and Commuting Bats

Habitat Suitability Assessment

- 2.17 As part of the habitat survey, an initial assessment of suitability for foraging and commuting bats within the wider survey area was made on Site. The habitat suitability was assessed using guidance from 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Bat Conservation Trust, 4th Edition, 2023). Table 4.1 of those guidelines provides an outline for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape.

Bat Activity Surveys

- 2.18 Based upon the habitats present on Site and connectivity to the wider area the site was considered to provide moderate suitability for bats and as such the initial proposed survey effort was to undertake monthly static bat detector surveys and seasonal activity surveys as per the guidelines.

Nighttime Bat Walkover (Flightpath / Transects Surveys)

- 2.19 In line with current guidance (Collins, 2023) nighttime bat walkovers are undertaken in two parts. The first part is undertaken by stationary surveyors positioned on habitat features most likely to be utilised as commuting routes by bats. Once conditions become too dark to see or once commuting activity has been observed, surveyors begin the second part, which is a walked transect sampling all areas and habitats within the Site, noting any bat activity that is heard or observed along the way. Whilst this includes two elements, it is one survey designed to record information to provide further context to elements that static detectors cannot always identify such as bat behaviour or abundance of bats collectively across different habitats of the Site.
- 2.20 The first part of the survey to observe flightpaths involved two surveyors being positioned at predetermined locations as shown on **Figures 4 and 5**. The survey started just before sunset and lasted for between one hour after sunset. After this the walked transect was started and continued until two to three hours after sunset.
- 2.21 A further transect and flightline survey will be conducted in May 2025. Results will follow in an addendum report.
- 2.22 Surveyors were equipped with Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and Samsung Galaxy Tab Active 3®, which detects bats and aid species identification. The survey timings and conditions are provided in **Table 3**.

Table 3: Summary of Transect Activity Survey Weather Conditions and Survey Timings

Date	Survey type	Timing/ Weather conditions
9 th August 2024	Dusk Flightpath and Transect	21:51 to 22:59 (sunset 21:51). Start temperature 19°C, dry with wind at BF 2 and 90% cloud cover.
19 th Sept 2024	Dusk Flightpath and Transect	19:09 to 21:17 (sunset 19:09). Start temperature 16°C, dry with wind at BF 1-2 and 85-95% cloud cover.

- 2.23 The data from the nighttime Bat Walkover survey was analysed as soon as possible after the survey using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.), by a suitably experienced

ecologist (Analysts are audited internally for quality control purposes and to maintain consistent results).

Static Bat Detector Surveys

- 2.24 Passive monitoring was undertaken using an automated logging system Wildlife Acoustics Inc. Song Meter® SM4Bat FS bat detectors with outputs saved to an internal storage device. The detectors used SMM-U2 microphones. Detectors were placed at features considered to be of value to bats, such as hedgerows, trees and scrub. Locations are shown on **Figures 4 and 5**.
- 2.25 Devices were placed in each location for an extended period of time of suitable weather conditions (little no rain/wind and temperatures above 10°C). Detectors were programmed to activate 30 minutes before dusk and recorded continuously until 30 minutes following sunrise.
- 2.26 For the purposes of analysis if the static detector was out over 5 consecutive nights the additional nights were only assessed for bat species listed on Annex II of the Habitats Directive. The recorded data were analysed using Sonobat™ 30.1 (SonoBat™ Inc.) software package to assess the amount of bat activity on Site by recording the number of bat passes.
- 2.27 Static detectors were deployed during the following periods;
- 8th to 13th August 2024; and
 - 24th to 30th September 2024.
- 2.28 Further deployment will be conducted in May 2025 with results to follow in an addendum.
- 2.29 The data were analysed as soon as possible after retrieval of the static units using the Sonobat™ 30.1 (SonoBat™ Inc.) software package to assess the amount of bat activity on site by recording the number of bat registrations. Data were initially run through the auto-analysis function of the software with manual vetting taking place of every call with the exception of common pipistrelles and soprano pipistrelles. Noise files were also manually vetted. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist (analysts are audited internally for quality control purposes and to maintain consistent results).

Survey Limitations

- 2.30 Where bat calls could not be identified to species level, for example due to the lower quality of those recordings or where there are similarities between species echolocation calls (particularly for *Myotis* and *Nyctalus* species) making a definite identification difficult, a likely species identification is provided. This is based on the features displayed by the calls when analysed using the Kaleidoscope and Sonobat™ 30.1 data analysis software package and taking into account the geographical location of the site and the habitats present.
- 2.31 To ensure the security of the SM4Bat FS bat detectors the placement of the detectors was carefully considered to avoid open habitats.

Badger

- 2.32 All hedgerows and other suitable habitats within the Site were searched for evidence of badger *Meles meles* activity. Methodology employed followed that outlined by Harris and Creswell and Jefferies⁶.
- 2.33 Evidence of badger occupation and activity sought included:
- Setts: including earth mounds, evidence of bedding and runways between setts;
 - Latrines: often located close to setts, at territory boundaries or adjacent to favoured feeding areas;
 - Prints and paths or trackways;
 - Hairs caught on rough wood or fencing; and
 - Other evidence: including snuffle holes, feeding and playing areas and scratching posts.

Reptiles

- 2.34 Habitats present within the Site were considered for their potential suitability to support reptile populations, including the presence of features which provide opportunities for reptiles to bask, forage and/or hibernate, and areas of varied vegetation structure in sheltered locations with sunny aspects and connectivity to other suitable reptile habitats. This assessment was based on the methodology detailed in the Herpetofauna Workers Manual⁷ and the Froglife Advice Sheet⁸.

Water vole

- 2.35 The ditches were considered for their suitability to support water vole *Arvicola amphibius* in line with recognised survey standards⁹. This involved seeking watercourses or ditches that had slow flowing water with soft, undisturbed earth banks for burrowing into and wide vegetated margins with tall grasses and herbs, fringed with emergent rushes, sedges or reeds, to give them food and cover. Descriptions and photos of the ditch feature were recorded.

Birds

- 2.36 A suit of wintering bird surveys have been completed and are reported in a separate Bird Report. The Site will be subject to breeding birds during the 2025 season.

⁶ Harris, S., Cresswell, P. & Jefferies, D. 1989. *Surveying for Badgers*. Occasional Publication of the Mammal Society No.9. Mammal Society, Bristol.

⁷ Gent, A.H. & Gibson, S.D., eds., 1998. *Herpetofauna Workers' Manual*. Peterborough, Joint Nature Conservation Committee.

⁸ Froglife, 1999. Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. *Froglife Advice Sheet 10*. Froglife, Halesworth.

⁹ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016) *The Water Vole Mitigation Handbook* (Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. Mammal Society, London.

3.0 RESULTS

Statutory Designations

- 3.1 Designated sites are mapped on **Figure 1a**.
- 3.2 There are no statutory designations of international importance within the Site or within the potential Zol of the Site.
- 3.3 A single national statutory designation lies just beyond 2km of the Site; Attenborough Gravel pits SSSI. One Statutory designations of County value lies within 1km of the Site; Toton Fields LNR, which lies immediately adjacent to the south western edge of the site. These designations are listed and detailed summarised in **Table 3**.

Table 3: National and County Statutory Designations

Site Name	Approx. Distance from Site	Interest Feature(s)
Attenborough Gravel pits SSSI	2.2km Southeast	Attenborough Gravel Pits SSSI is a nationally important site for its lowland eutrophic open waters with emergent vegetation, wet floodplain woodland, unimproved floodplain grassland, a rich assemblage of breeding birds associated with lowland open waters and their margins, and wintering shoveler <i>Anas clypeata</i> and bittern <i>Botaurus stellaris</i> .
Toton Fields LNR	0m South	The site lies alongside the River Erewash with associated wetland species, wet grassland and young woodland. It is characterised by amenity grassland, small areas of ash/ willow / poplar plantations, river corridor and scrub habitats.

Non Statutory Designations

- 3.4 Non statutory designations in Nottinghamshire are known as Local Wildlife Sites (LWSs). There are twelve LWSs within 1km of the Site, including Toton Sidings LWS that sits immediately adjacent to the western edge of the site. These are listed and detailed summarised in **Table 4** below.

Table 4: Non /Statutory Designations within 1km of the Site

Site Name	Approx. Distance from Site	Interest Feature(s)
Toton sidings LWS	0m west	It supports a rich assemblage of notable plants with a mosaic of habitats ranging from scrub and developing woodland to grassland and bare, disturbed ground. Rough grassland with scattered scrub vegetates the embankment while the old track beds are becoming dominated by young Silver Birch <i>Betula pendula</i> , which are interspersed with open areas supporting a huge diversity of plants. The site is also designated for the Dingy Skipper <i>Erynnis tages</i> butterfly.
Toton Sidings Fishing Pond 5/9	300m northwest	This pond is situated between the River Erewash and Toton railway sidings. It has a well-established and diverse marginal flora including Water-horsetail <i>Equisetum fluviatile</i> , Water Mint <i>Mentha aquatica</i> and Purple Loosestrife <i>Lythrum salicaria</i> with Yellow Water-lily <i>Nuphar lutea</i> growing across the pool surface. It is fringed by semi-improved horse-grazed pasture and tall grown willow <i>Salix</i> spp. and Hawthorn <i>Crataegus monogyna</i> scrub.
Erewash Grassland 2/285	350m northwest	This damp, neutral grassland with scattered Hawthorn <i>Crataegus monogyna</i> scrub is situated on the floodplain of the River Erewash. Crested Dog's-tail <i>Cynosurus cristatus</i> , Common Bent <i>Agrostis capillaris</i> , Yorkshire-fog <i>Holcus lanatus</i> and Perennial Rye-grass <i>Lolium perenne</i> are

Site Name	Approx. Distance from Site	Interest Feature(s)
		the main grass species found in the sward which has a herb content including Common Bird's-foot-trefoil <i>Lotus corniculatus</i> , Cuckoo-flower <i>Cardamine pratensis</i> and Great Burnet <i>Sanguisorba officinalis</i> . A drainage ditch running across the site has notable marginal communities supporting Water Mint <i>Mentha aquatica</i> , Gipsywort <i>Lycopus europaeus</i> , Water-plantain <i>Alisma Plantago-aquatica</i> and Marsh Yellow-cress <i>Rorippa palustris</i> . This ditch joins a larger willow-lined drain which forms the south-western boundary with Toton Sidings Fishing Pond (LWS 5/9).
Lock Lane Scrub	490m west	Unknown. Adjoining Erewash Grassland 2/285 described below.
Toton Grassland	500m west	Unknown. Adjoining Toton Sidings Riverside 2/284 described below.
Toton Sidings Grassland and scrub 5/10	500m west	Erewash flood meadow and rough, unmanaged grassland and scrub divided by a flood prevention bank. There are wetland areas in old river hollows to the east of the bank in an area which is subject to flooding. The site is unmanaged and hence has invading tall ruderal vegetation, but it retains a sward rich in the original grasses; Tufted Hair-grass (<i>Deschampsia caespitosa</i>), Meadow Fescue (<i>Festuca pratensis</i>) and Red Fescue (<i>Festuca rubra</i>) with Meadow Crane's-bill (<i>Geranium pratense</i>) Pepper Saxifrage (<i>Silene silaus</i>) and Meadow Buttercup (<i>Ranunculus acris</i>) amongst typical meadow forbs.
Erewash Canal	550m west	Unknown
Toton Sidings Riverside 2/284	550m west	This valuable riverside habitat mosaic comprises neutral grassland, marshy grassland, dense scrub and woodland. The banks of the River Erewash support species such as Purple-loosestrife <i>Lythrum salicaria</i>, Water Dock <i>Rumex hydrolapathum</i> and Water Mint <i>Mentha aquatica</i>, while aquatic species include Stream Water-crowfoot <i>Ranunculus penicillatus</i>. Marshy areas are species-rich with species including Meadowsweet <i>Filipendula ulmaria</i>, Wild Angelica <i>Angelica sylvestris</i>, Common Marsh-bedstraw <i>Galium palustre</i>, Brown Sedge <i>Carex disticha</i> and Large Bird's-foot-trefoil <i>Lotus pedunculatus</i> while grasslands have a sward containing False Oat-grass <i>Arrhenatherum elatius</i> with Great Burnet <i>Sanguisorba officinalis</i>, Meadow Vetchling <i>Lathyrus pratensis</i> and Meadow Crane's-bill <i>Geranium pratense</i>. Dense scrub and damp broadleaved woodland are characterised by many willow <i>Salix</i> sp. species with Silver Birch <i>Betula pendula</i> and Hawthorn <i>Crataegus monogyna</i>.
River Erewash Floodplain	600m west	Unknown. Adjoining Toton Sidings Riverside 2/284 described below.
Toton Erewash Canal 5/2294	600m west	This site comprises a stretch of the River Erewash and a bypass channel which flow through the Toton Fields Local Nature Reserve. Spiked Water-milfoil <i>Myriophyllum spicatum</i>, Amphibious Bistort <i>Persicaria amphibia</i> and Stream Water-crowfoot <i>Ranunculus penicillatus</i> grow in the channels while the margins support species such as Reed Sweet-grass <i>Glyceria maxima</i>, Branched Bur-reed <i>Sparganium erectum</i> and rushes <i>Juncus</i> spp. On the lower reaches of the banks in damp soils Meadowsweet <i>Filipendula ulmaria</i>, Wild Angelica <i>Angelica sylvestris</i> and Large Bird's-foot-trefoil <i>Lotus pedunculatus</i> can be found. Bordered by amenity, semi and unimproved grassland with scattered scrub along the banks these channels offer habitat to a range of faunal species.
Toton Erewash Grassland 5/3456	950m south	This grassland, which is part of the Toton Fields Local Nature Reserve, is almost entirely bordered by the Toton Erewash Channel (LWS 5/2294). The rough sward supports a population of the rare Dingy Skipper <i>Erynnis tages</i> butterfly a species of conservation concern in Nottinghamshire.
Toton Sidings Pond	1km south	Unknown

Habitats

- 3.5 Botanical species lists for each habitat are given in **Appendix B** and habitats are mapped on **Figure 2**. Further detail on the habitats can be found in the separate BNG technical note.

Arable Land

- 3.6 A majority of the Site comprised arable field parcels with very narrow margins that supported common and widespread field edge species. Species included scentless mayweed *Tripleurospermum inodorum*, bramble *Rubus fruticosus* agg., broadleaved dock *Rumex obtusifolia*, tansy *Tanacetum vulgare*, garlic mustard *Alliaria petiolata*, hedge mustard *Sisymbrium officinale* and creeping thistle *Cirsium arvense*.

Semi Improved grassland

- 3.7 There is a very small area of grassland in the east of the Site (G1). This was at the edges of the scrub and woodland surrounding the sub station. There is also an area of concrete and extensive fly tipping here. Species comprised species such as ragwort *Senecio jacobaea*, wild carrot *Daucus carota*, rough meadow grass *Poa trivialis*, false oat grass *Arrhenatherum elatius*, willowherb species *Epilobium* sp., red fescue *Festuca rubra* and red clover *Trifolium pratense*.
- 3.8 There is another small area around the base of the pylon on the southern boundary (G2). This comprised creeping bent *Agrostis stolonifera*, wild carrot, smooth tare *Vicia tetrasperma*, ribwort plantain *Plantago lancaolata*, white clover *Trifolium repens*, Yorkshire fog *Holcus lanatus*, field bindweed *Convolvulus arvensis*, zig zag clover *Trifolium medium*, lesser trefoil *Trifolium dubium* and scarlet pimpernel *Anagallis arvensis*.

Hedgerows and Treelines

- 3.9 The field parcels are bound and delineated by a network of hedgerows and tree lines. Species include hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, elder *Sambucus nigra*, ash *Fraxinus excelsior*, oak *Quercus robur*, sycamore, field maple *Acer campestre* and dog rose *Rosa canina*. Some hedgerows form residential boundaries, some field boundaries.

Scrub

- 3.10 Surrounding the substation adjacent to the east of the Site is some dense scrub that graduates into woodland adjacent to the Site (S1). Species include ash *Fraxinus excelsior*, hawthorn *Crataegus monogyna*, sycamore *Acer pseudoplatanus*, wild cherry *Prunus avium*, crab apple *Malus sylvestris*, damson *Prunus insititia*, laural *Prunus Laurocerasus* and butterfly bush *Buddleia davidii*.
- 3.11 There is a small section of bramble *Rubus fruticosus* agg. Scrub in the east of the Site (S2).
- 3.12 There is a small section of bramble dominated scrub also in the east of the Site (S3) that includes sycamore *Acer pseudoplatanus* saplings, elder and hawthorn.

Individual Trees

- 3.13 There is a group of individual young and semi mature ash trees in the east of the Site.

Woodland

- 3.14 There is a very small area of woodland in the southeast corner of the Site. There are two mature lime *Tilia* sp. trees and a mature sycamore as well as some ash saplings. The area is very

disturbed and the ground flora consists mainly of ivy *Hedera helix*, bramble and nettle *Urtica dioica*.

Ditch

- 3.15 A field drain runs through the western most arable field. It is largely dry and supports only terrestrial field margin vegetation dominated by false oat grass with occasional ruderals including common nettle, creeping thistle and mugwort.

Species

Badger

- 3.16 No records of badger were returned during the desk study.
- 3.17 No evidence of badger presence was recorded in the 2024 survey. However, as they are recorded locally, it is assumed that badger use the Site as part of a foraging territory.

Roosting Bats

- 3.18 No records for roosting bats within 1km of the Site, recorded in the past 20 years were returned during the desk study.

No buildings occur within the Site. None of the trees presented features suitable to support roosting bats.

Foraging and Commuting Bats

- 3.19 Records of at least 8 species of bat from the surrounding 1km were returned during the desk study. Many of these were generated from surveys conducted along the River Erewash corridor, however records of common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, brown long eared *Plecotus auritus* and a *Myotis* species were identified in the land more immediately surrounding the Site.

Flightline and Transect Survey

- 3.20 The Summer survey only recorded common pipistrelle bats in small numbers. Flightline point A at the western boundary of the Site registered more contacts during both the Summer and Autumn surveys than flightline point B, though again registrations were predominantly small numbers of common pipistrelle. The transects surveys recorded an assemblage of common and soprano pipistrelle and noctule bats. Activity recorded was low with no obvious concentrations of activity.

Static Detector Survey

- 3.21 The static detectors recorded an assemblage of at least five common and widespread species; common and soprano pipistrelle, noctula, brown long eared and *Myotis* species as well as unidentified *Nyctalus* species. Activity was dominated by common pipistrelle (84% of all registrations recorded across data collected to date). Activity from other species was low, *Myotis* registrations representing 11% of data collected to date and other species making up the remaining 5%). Results are shown in **Appendix D**.
- 3.22 The bat assemblage using the Site is considered to be typical of managed arable habitat on an urban edge.

GCN

- 3.23 There is no suitable aquatic habitat for GCN breeding within the Site. The field margins harbour some poor quality terrestrial habitat for them if locally present.
- 3.24 No ponds occur within 250m of the Site. There were ten ponds within 250m - 500m of the Site as shown on **Figure 3**. Seven of these ponds are associated with Bardills Garden Centre and the Japanese Water Gardens. The artificial nature and fish stocking of these ponds means that they have been ruled out of survey for GCN.
- 3.25 Ponds P8, P9 and P10 are over 250m from the Site. Pond P8 is within an urban area which provides an effective barrier to GCN dispersal. Ponds P9 and P10 are the other side of extensive railway sidings which are also considered to provide an effective barrier to GCN dispersal. If GCN were present in these ponds, they would not access the Site.
- 3.26 Pond P1, well over 300m from the Site, underwent eDNA sampling in 2023 and returned a negative results. The eDNA results given as **Appendix C**.
- 3.27 GCN are not considered likely to be present on the Site and are not considered further in this appraisal.

Reptiles

- 3.28 Multiple grass snake records were identified within 1km of the site, the nearest of which was within Toton Fields LNR approx. 650m south of the Site. Several other records corresponded with the LWS along the Rever Erewash indicating a population utilise this collective corridor of habitats.
- 3.29 There is some poor quality habitat for reptiles on the Site, limited to the field boundaries. The narrow field margins and high levels of disturbance from agricultural management mean that reptiles are considered unlikely to be migrate into the Site in significant numbers nor be present within the Proposed Development area (currently arable). It is feasible that grass snake may occasionally utilise the boundary hedgerow/tree line habitats as part of a wider territory, as this is a very mobile species known to be present locally.

Water vole

- 3.30 The ditch through the site were dry fringed with a narrow margin of grass. The only associated vegetation was terrestrial grasses and herbs that did not offer adequate foraging or cover to support water vole. Water vole are therefore not considered likely to be present on the Site and are not considered further in this appraisal.

Birds

- 3.31 The Site is subject to surveys for wintering and breeding birds. This is discussed in a separate bird report.

Other Notable Mammals

- 3.32 Water vole records were returned which corresponded to the Erewash Canal. The nearest of these records was c. 600m west of the site boundary physically separated from the site by the extensive railway sidings. Records of water shrew were also associated with the canal.
- 3.33 Multiple records of hedgehog were identified within 1km. The woodland and scrub habitats adjacent to the south and west of the Site provides high quality habitat for this species. The

woodland and scrub surrounding the sub station in the northeast of the Site also provides high quality habitat. The hedgerows within the Site that link to these habitat area, provide some, albeit lower quality, habitat for hedgehog. Therefore, small numbers are assumed to be present on the Site.

4.0 DISCUSSION

Statutory Designations

Attenborough Gravel Pits SSSI

- 4.1 A drainage ditch runs through the site, however mapping indicates this is a farmland ditch and does not connect to a watercourse. Therefore there are no hydrological links connecting the Site with this SSSI.
- 4.2 However, as standard good practice measures, construction operations and site management protocols will be implemented to prevent pollution and soil run-off resulting in siltation of ditches and/or changes in water quality running offsite. Although the Environment Agency (EA)'s Pollution Prevention Guidelines (PPGs) have been withdrawn, they still remain the best source of guidance in relation to avoidance of pollution. Reference will be paid to PPG01-06, PPG21 and PPG22 (available on the National archives).
- 4.3 The Construction Industry Research and Information Association (CIRIA) guidance will also be followed, in particular:
- CIRIA C471 – Environmental Good Practice on Site (4th Edition) 2015;
 - CIRIA C532D – Control of water pollution from construction sites. Guidance for consultants and contractors (2001); and
 - CIRIA SP156 – Control of Water Pollution from Construction Sites (2012).
- 4.4 These measures should be detailed within a Construction Ecological Management Plan (CEMP) prepared for the development. Subject to these measures being fulfilled, no significant impacts upon water quality coming off the Site are anticipated to arise as a result of the development.
- 4.5 Development at the Site will lead to a potential increase in recreational pressure at this SSSI but Attenborough gravel pits is already well managed for visitors and actively managed for them. It is not thought that the potential increase will be significant over and above that which it already receives.

Toton Fields LNRs

- 4.6 Development at the Site will lead to a potential increase in recreational pressure at Toton Fields LNR, however it has surfaced designated rights of way with an existing management plan for habitats across the Site and clear strategies for managing visitors. It is not thought that the potential increase will be significant over and above that which they already receive and existing strategies are capable of managing.

Non Statutory Designations

Toton Sidings LWS

- 4.7 There will be no direct landtake of Toton Sidings LWS. There are Public Rights of Way (PRoW) directly onto Toton Sidings and it forms part of Toton Field LNR. It is proposed that footpath linkages through the Site will connect into the existing pedestrian and cycle links through the LWS providing future residents of the scheme with direct access to these offsite habitats. As per the Illustrative Masterplan public open space will be provided at the western extent of the development which will include play space but will also provide semi-natural habitats and buffer planting that will be complementary to the adjacent LWS habitats. For reasons discussed above in relation to the LNR designation, it is considered that the strategies in place at the LNR/LWS would be capable of supporting additional visitor numbers generated by the development such that no adverse effects would be anticipated from recreational pressure.

Other LWS

- 4.8 There are a further twelve LWSs within 1km of the Site. These are all over 300m from the Site and all grassland and scrub habitat as well as the Erewash Canal which contribute to the network of designation along the River Erewash corridor and would potentially be accessed by future residents via footpaths leading through Toton Sidings LWS. Therefore as at a greater distance from the Site, these sites collectively would already experience a degree of pressure from recreational visitors to Toton Sidings and again it is anticipated that the existing strategies and management would be capable of mitigating any potential adverse effects.

Habitats

- 4.9 The degree to which habitats receive consideration within the planning system relies on a number of mechanisms, including:
- Inclusion within a specific policy, for example veteran trees, ancient woodland and linear habitats within the National Planning Policy Framework (NPPF)¹⁰;
 - A non-statutory site designation (e.g. LWS);
 - Habitats considered as Habitats of Principal Importance for the conservation of biodiversity as listed within Section 41 of the NERC Act 2006;
 - Habitats identified as being a Priority Habitat within the local Biodiversity Action Plan (Nottinghamshire BAP).
- 4.10 The habitats identified during the survey that fall within any of the above listed categories are the boundary hedgerows and treelines. As shown on the Illustrative Masterplan (**Appendix A**), the boundary habitats are retained and buffered wherever possible. A section of treeline TL2 will be lost to facilitate access into the site from Stapleford Lane with associated visibility

¹⁰ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

splays and a very small section of hedge H4 will be removed to allow pedestrian link to the offsite footpath network. The small area of woodland in the eastern extent of the site will also be removed.

- 4.11 To avoid damage/disturbance of these retained boundary features during construction it is recommended that an Ecological Protection Zone (EPZ) around the retained trees and hedgerows should be established during the construction phase. EPZs can often be achieved through co-ordination with tree protection measures required as good arboricultural practice including BS5837 Trees in Relation to Construction – Recommendations: 2012 for trees and hedgerows, where all retained trees are protected from damage and soil compaction during works by maintaining protected Root Protection Areas (RPAs). This zone is demarcated with temporary protective fencing determined in accordance with BS 5837 (2012) and signage. It is recommended that details of such measures and their implementation are delivered through a CEMP prepared for the Site.
- 4.12 The semi-improved grassland and scrub habitats were of limited botanical value comprising common and widespread species and covering a very small areas. The removal of these habitats is not considered likely to significantly impact local wildlife populations and these losses do not represent a constraint to development.
- 4.13 There is significant scope for species rich grassland and additional tree, scrub and hedgerow creation within the public open space (POS), with the following being incorporated into the Illustrative Masterplan (**Appendix A**) and landscape design:
- Retention of a majority of the existing hedgerows and treelines;
 - Creation of SuDS areas to be maintained as a habitat for wildlife;
 - Maximisation of grassland diversity where possible in greenspace through use of appropriate flowering lawn and meadow mixes; and
 - Planting of structural landscaping including native scrub and tree including fruit and seed-bearing species to add structural and species diversity to the Site. Such planting will buffer and enhance existing boundary and offsite habitats.
- 4.14 Specifications for new planting and other habitat creation as well as the measures to maintain existing habitats, to ensure successful establishment of new habitats, and to maintain the value of all ecological features in the long-term should be detailed within a Landscape Ecology Management Plan (LEMP) secured by planning condition.
- 4.15 The biodiversity net gain calculations for the development will given in a separate ecology technical note.

Species

- 4.16 Principal pieces of legislation protecting wild species are Part 1 of the Wildlife and Countryside Act 1981 (as amended) (WCA) and the Conservation of Habitats and Species Regulations 2017 (as amended). Some species, for example badgers, also have their own protective legislation (Protection of Badger Act 1992). The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.

- 4.17 The presence of protected species is a material consideration in any planning decision, it is essential that the presence or otherwise of protected species, and the extent to which they are impacted by proposals is established prior to planning permission being granted. Furthermore, where protected species are present and proposals may result in harm to the species or its habitat, steps should be taken to ensure the long-term protection of the species, such as through attaching appropriate planning conditions.
- 4.18 In addition to protected species, there are those that are otherwise of conservation merit, such as Species of Principal Importance for the purpose of conserving biodiversity under the NERC Act 2006. These are recognised in the NPPF, which advises that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying a set of principles including:
- If significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
 - Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.
- 4.19 Potential implications for development at the Site are outlined below.

Badger

- 4.20 Badgers are a widespread species that are protected from harm and cruelty by the Protection of Badgers Act 1992.
- 4.21 There are no badger setts within the Site however, is considered very likely that the Site is used as part of a foraging territory.
- 4.22 To avoid harm to any individuals that might be using the Site during construction, it is recommended that construction best practice measures are detailed within an CEMP be followed and include:
- Directing any security lighting away from the retained hedgerows and woodland;
 - Covering any trenches at the end of each working day, or including a means of escape for badgers (and other mammals); and
 - Capping of temporarily exposed pipe systems out of work hours.

- 4.23 In addition, the use of native fruit and seed-bearing trees within new planting will enhance foraging opportunities on the Site for badger and the sensitive lighting scheme designed for bats will ensure minimal impact on badger.
- 4.24 Subject to these recommendations, the proposed scheme is unlikely to have a negative impact on badger.

Roosting Bats

- 4.25 All UK species of bats and their roosts are listed on the Conservation of Habitats and Species Regulations 2017 (as amended), making it illegal to deliberately disturb any such animal or damage / destroy a breeding site or roosting place of any such animal. Bats are also afforded

full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is illegal to recklessly or intentionally kill, injure or take a species of bat or recklessly or intentionally damage or obstruct access to or destroy any place of shelter or protection or disturb any animal whilst they are occupying such a place of shelter or protection. Some bat species, including soprano pipistrelle, noctule and brown long-eared bat are also Species of Principal Importance under the NERC Act.

- 4.26 No potential roost features were recorded. To offer enhanced opportunities for bats to roost it is recommended that a range of bat boxes should be installed on selected retained trees around the perimeter of the Site. Locations should be detailed within a LEMP. Subject to this recommendation, the proposed scheme is unlikely to have a negative impact, and potentially will have a positive impact on roosting bats.

Foraging and Commuting Bats

- 4.27 A small assemblage of foraging and commuting bats typical of managed urban edge habitats is using the Site. This assemblage is dominated by pipistrelle bats that are capable of adapting to urban environs.
- 4.28 The foraging and commuting habitat is largely limited to the boundary hedgerows and treelines which as shown on **Appendix A** are to be largely retained. There will be loss of a section of tree line TL2 for access and a very small section of hedgerows H4 but the majority of the hedgerows will be retained within green corridors.
- 4.29 Any unavoidable hedgerow and treeline loss can be mitigated for through additional planting, and an overall enhancement in terms of commuting and foraging habitat for bats within the Site achieved via the loss of managed arable land to proposed SuDS, grassland, scrub and trees within the POS, all of which can be managed appropriately for wildlife. Garden habitats too will contribute to the foraging resource of the local bat population. This additional habitat creation will not only enhance habitat provided by the Site itself but will maintain connectivity to habitats in the wider area.
- 4.30 It is recommended that an appropriate sensitive lighting scheme is implemented to maintain dark corridors around retained boundary habitats as well as areas of created semi-natural habitats within the POS such as the SuDS feature to ensure unimpeded foraging and commuting lines for bats. Where artificial lighting cannot be avoided the lighting scheme will be designed with reference to the Bat Conservation Trust and Institute of Lighting Professionals guidance¹¹. A sensitive lighting scheme could be achieved through a combination of positioning of fittings/luminaires and other design features such as directional hoods/baffles, timers, low level bollards, etc., to maintain 'dark zones' around the trees.
- 4.31 Subject to these recommendations, the proposed scheme is unlikely to have a negative impact on foraging bats.

¹¹ Bat Conservation Trust & Institute of Lighting Professionals (ILP) 2018. Guidance Note 8: Bats and artificial lighting in the UK. Bats and the Built Environment Series.

Reptile

- 4.32 A number of local records of grass snake were identified by the desk study in habitats to the west of the site which had connectivity to the western boundary of the site via habitat suitable to support reptiles. The narrow field margins and high levels of disturbance from agricultural management within the site mean that reptiles are considered very unlikely to migrate into the site in significant numbers. However, low numbers of mobile individuals may occasionally be present in scrub, hedgerows or tree bases at the perimeters of the fields.
- 4.33 As a precaution it is recommended that the following precautionary method of working is included within the CEMP and employed to prevent any harm to these potential individuals:
- Vegetation clearance of hedge, scrub or trees required for the enabling phase should be undertaken between April and September and / or during suitably warm conditions and under supervision by a suitably qualified ecologist.
 - Firstly, any logs or timber or other discarded debris that could form refugia for reptiles will be moved by hand out of the area to be cleared.
 - The vegetation will then be cut down to a height of 150mm and left for 2-3 days, to encourage any reptiles to disperse from the area.
 - Any tree or hedgerow root balls that require 'grubbing out' must be removed under supervision.
 - All arisings from the vegetation clearance will be taken away from the vicinity of the development footprint no later than the day after vegetation clearance.
 - The site must remain in its cleared state to deter reptiles and other wildlife from entering it.

Birds

- 4.34 Impacts on breeding and wintering birds are discussed on a separate bird report.

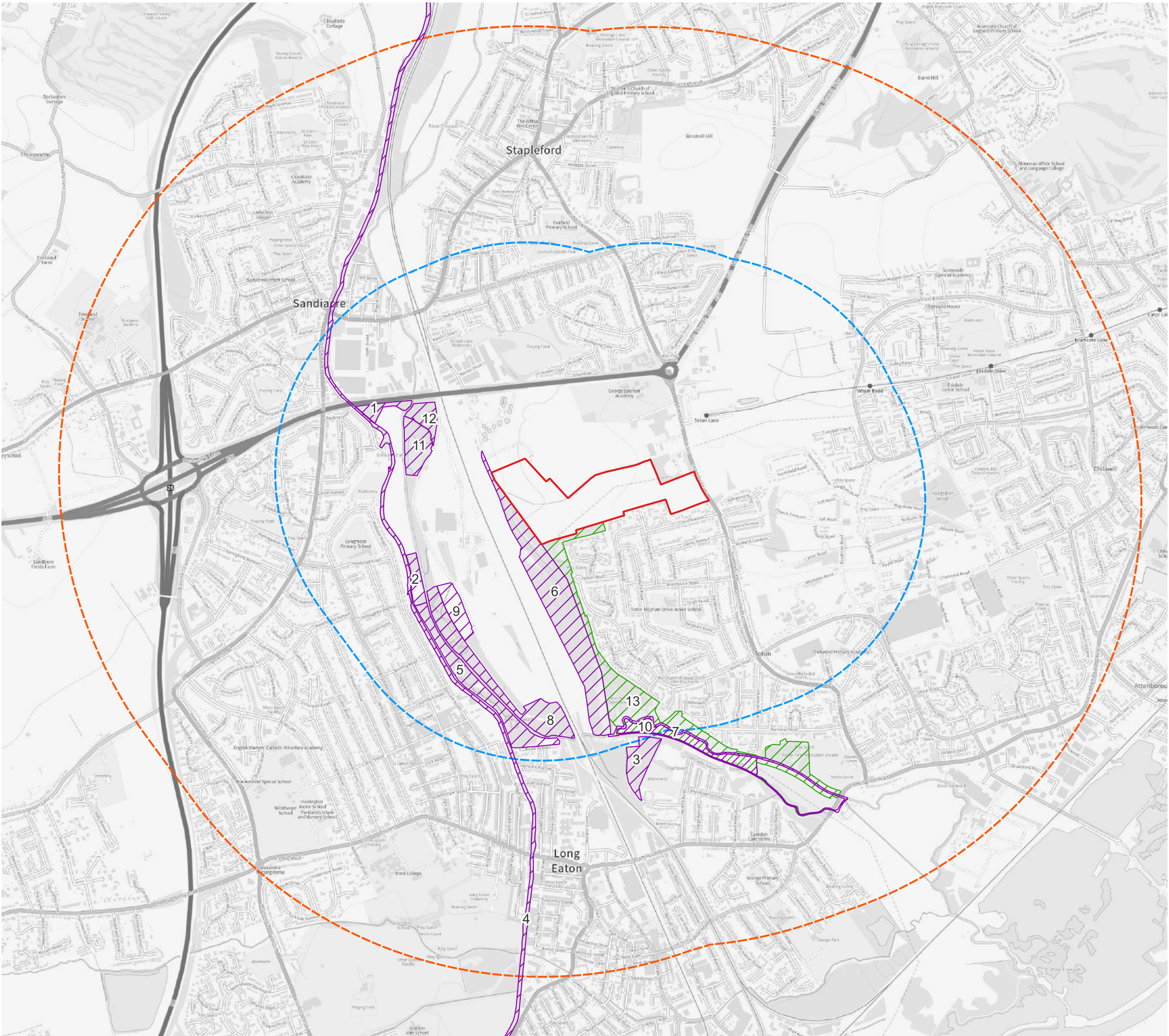
Other Mammals

- 4.35 As stated previously, the Site has the potential to support hedgehog in low numbers.
- 4.36 There is to be loss of a very small area categorised as woodland, removal of a section of tree line from Stapleford Lane and a very minor hedgerow loss of H4. Any unavoidable tree and hedgerow loss can be mitigated for, and the proposed habitat creation at the Site peripheries and the green area with SuDS across the western extent of the Site will provide opportunities and retain and enhance the connectivity to habitats within the wider area. The creation of additional wetland areas (SuDS) will increase the invertebrate diversity on the Site and so increase forging quality for hedgehog.
- 4.37 As hedgehogs hibernate within piles of dead vegetation and debris, removal of such material across the site should be conducted outside of November to February inclusive. It is also recommended that during the construction phase materials should not be stored near areas of retained habitat or otherwise should be hand searched prior to removal. The best practice measures to be followed throughout construction for badger (and detailed within an CEMP) will also ensure no harm to hedgehogs occurs.

- 4.38 In addition, it is recommended that all on plot fencing contains hedgehog holes (13 x 13cm holes in closed board fencing) to enable hedgehog to move through gardens to ensure the entire Site remains permeable to hedgehog.
- 4.39 Subject to these recommendations, the proposed scheme is unlikely to have a negative impact on hedgehog.

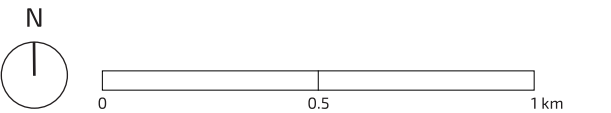
5.0 CONCLUSIONS

- 5.1 The desk- and field-based baseline investigations have demonstrated that the habitats present within and around the Site do not pose an 'in principle' constraint to the proposed development.
- 5.2 The retention of a majority of the ecologically valuable habitats within the site design (hedgerows and treelines) and the creation of new habitats is proposed. This report has outlined precautionary and best practice measures to ensure avoidance of harm to individual animals including badger, hedgehog and grass snake that might be using the Site during construction. Through the creation of semi-natural habitats such as grassland, scrub and hedgerows and additional wetlands (SuDS) that can be managed sympathetically for wildlife as well as provision of additional nesting and roosting boxes for birds and bats around the site, means that habitat connectivity and opportunities for a range of protected and notable species will be maintained and enhanced across the site.
- 5.3 On this basis, by virtue of the relatively limited constraint posed by the limited habitats and protected species interest within the site and the scale and scope of the greenspace, the scheme is capable of compliance with relevant planning policy for the conservation of the natural environment.
- 5.4 Biodiversity Net Gain is discussed within a separate report.



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Key

- Site Boundary
- 1km Buffer
- 2km Buffer
- Local Wildlife Sites (with ref.)
- Local Nature Reserve (with ref.)

- Local Wildlife Sites
- 1. Lock Lane Scrub, Sandiacre
 - 2.Toton Grassland
 - 3.Toton Sidings Pond
 - 4.Erewash Canal
 - 5.River Erewash floodplain, Long Eaton
 - 6.Toton Sidings
 - 7.Toton Erewash Channel
 - 8.Toton Sidings Riverside
 - 9.Toton Sidings Grassland and Scrub
 - 10.Toton Erewash Grassland
 - 11.Toton Sidings Fishing Pond
 - 12.Erewash Grassland, Stapleford

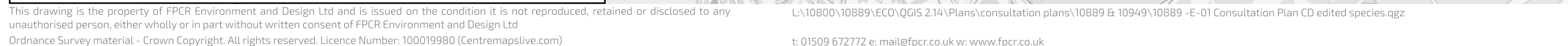
- Local Nature Reserves
- 13.Toton Fields

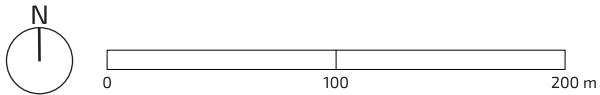
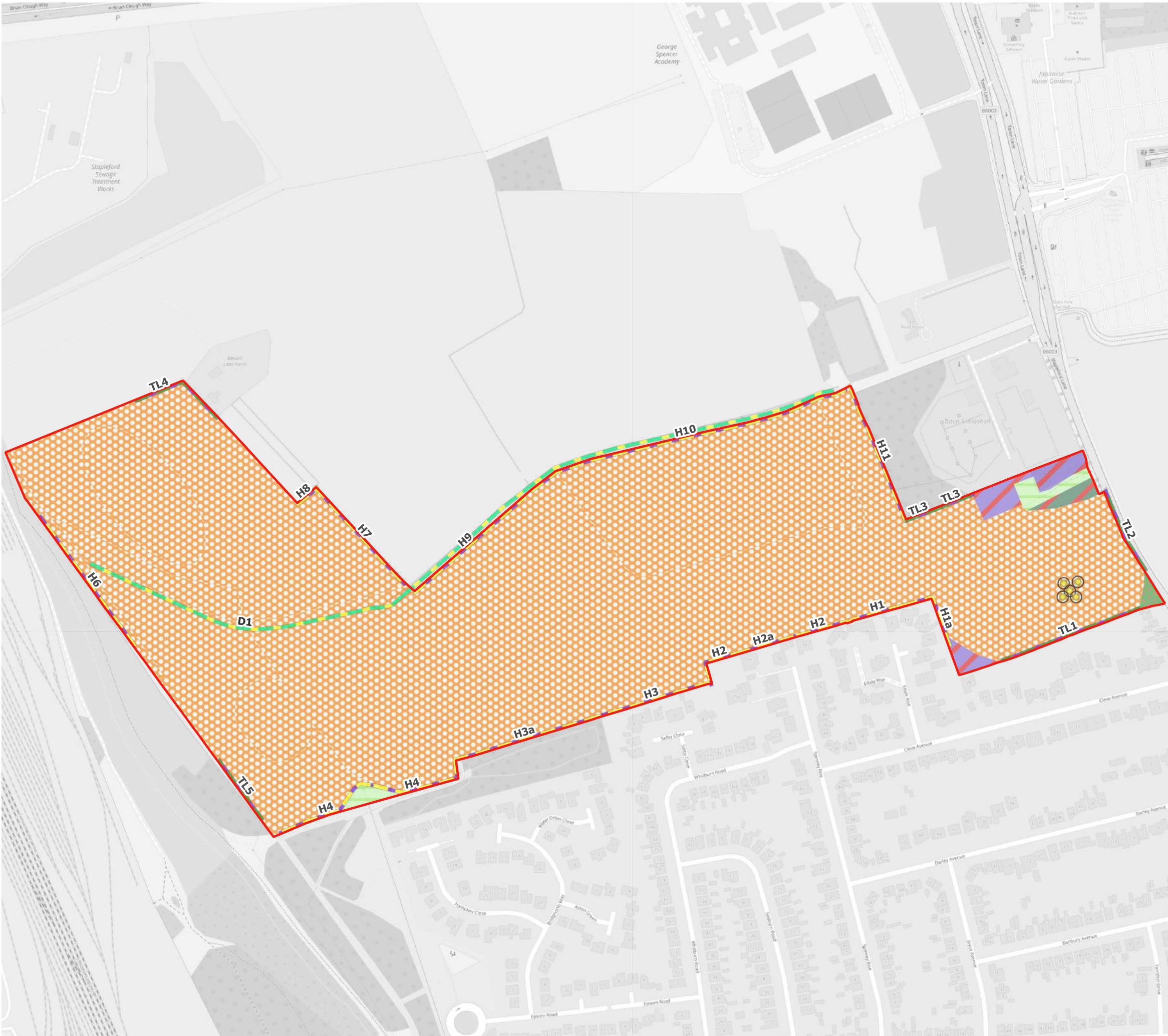
date 04/03/25 drwn/chkd CD/ VF

client Bloor Homes
project Toton West Nottingham

title CONSULTATION PLAN-DESIGNATED SITES scale 1:17,500 @ A3
number rev -

FIGURE 1A





- Red Line Boundary
- Baseline Habitats
 - Bramble scrub
 - Mixed scrub
 - Non-cereal crops
 - Other neutral grassland
 - Other woodland; broadleaved
- Baseline Hedgerow
 - Line of trees
 - Native hedgerow
- Baseline Watercourse
 - Ditches
- Baseline Individual Trees
 - Existing medium rural tree

date 04/03/25 drwn/chkd DS / LR

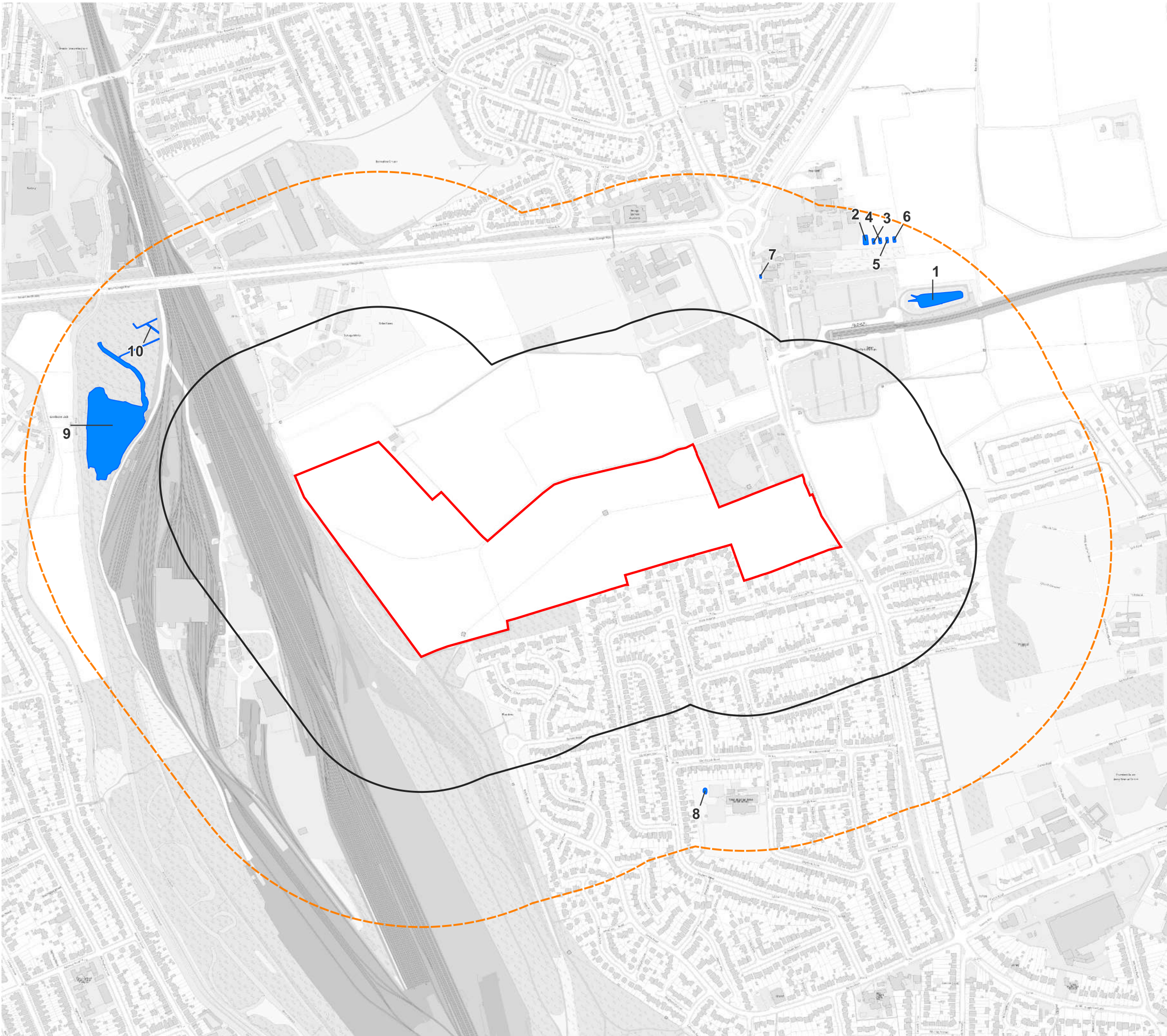
client Bloor Homes
project

Toton West

title BASELINE HABITAT PLAN scale 1:3,300 @ A3

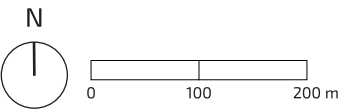
number FIGURE 2 rev -

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Key

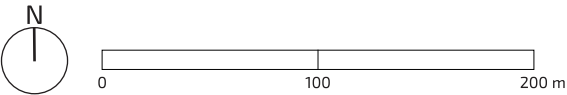
- Site Boundary
- 250m Buffer
- 500m Buffer
- Waterbody (with ref.)

date 03/09/24 drwn/chkd CD / VF

client Bloor Homes East Midlands & Peveril Homes
project Toton West Nottingham

title WATERBODY LOCATION PLAN scale 1:7,000 @ A3

number FIGURE 3 rev -



Key

- Site Boundary

Static Detector Locations

Start point

Finish point

Surveyor position
- Flight arrows

Transect Route

Bat contacts

Common Pipistrelle

Soprano Pipistrelle

Flightlines Results

Ref	Time	Species name	Passes	Behaviour
A1	21:03	Common pipistrelle	2	C
A2	21:05	Common pipistrelle	4	F
A	21:08	Common pipistrelle	2	C
A	21:09	Soprano pipistrelle	1	C
A	21:09	Common pipistrelle	3	F
A3	21:13	Common pipistrelle	Cont	F
A	21:16	Common pipistrelle	Cont	F
A	21:20	Common pipistrelle	2	C
A	21:21	Soprano pipistrelle	1	C
A	21:21	Common pipistrelle	Cont	F
A	21:31	Soprano pipistrelle	1	C

Transect Results

Ref	Time	Species Name	Passes	Behaviour
1	22:01	Common pipistrelle	1	C
2	22:03	Common pipistrelle	2	C
3	22:07	Soprano pipistrelle	1	C
4	22:07	Common pipistrelle	1	C
5	22:14	Common pipistrelle	1	C
6	22:18	Common pipistrelle	1	C
7	22:44	Common pipistrelle	3	F
8	22:47	Common pipistrelle	2	F

C - Commuting
F - Foraging

date
27/02/25

drwn/chkd
KD / VF

client
Bloor Homes

project
**Toton West,
Nottingham**

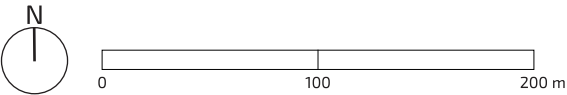
title
10889 BAT FLIGHTLINE RESULTS

scale
1:3,500 @ A3

number
PLAN - 08/08/2024

rev
-

FIGURE 4



Key

Site Boundary

Static Detector Locations

Start point

Finish point

Surveyor position

Transect Route

Flight Arrow

Bat contacts

Common Pipistrelle

Soprano Pipistrelle

Flightlines Results

Ref	Time	Species Name	Passes	Behaviour
A	19:20	Noctule	1	C
A	19:32	Noctule	1	C
A	19:38	Soprano pipistrelle	1	C
A	19:38	Common pipistrelle	1	C
A	19:56	Common pipistrelle	2	C
A	20:04	Common pipistrelle	1	C
B	19:38	Common pipistrelle	1	C
B	19:47	Common pipistrelle	2	C
B1	20:00	Common pipistrelle	1	C

Transect Results

Ref	Time	Species Name	Passes	Behaviour
1	20:26	Common pipistrelle	1	F
2	20:44	Common pipistrelle	Multiple	F
3	20:47	Soprano pipistrelle	1	C
4	20:47	Common pipistrelle	1	F
5	20:47	Soprano pipistrelle	1	C
6	20:52	Common pipistrelle	Multiple	F
7	21:14	Soprano pipistrelle	1	C

C - Commuting
F - Foraging

date

27/02/25

drwn/chkd

KD / VF

client

Bloor Homes

project

Toton West,
Nottingham

title

10889 BAT FLIGHTLINE AND TRANSECT RESULTS PLAN - 19/09/2024

scale

1:3,500 @ A3

number

FIGURE 5

rev

-



- ### KEY
- Site Boundary**
18.95Ha
 - Development Residential**
12.00Ha @35dph = 420 dwellings
 - Public Open Space**
 - Vehicular Site Access**
B6003
 - Primary Street**
Indicative Alignment
 - Streets & Lanes**
Illustrative street network
 - Existing Trees & Hedgerows**
Retained
 - Drainage Basins**
 - Public Rights of Way**
Retained Footpaths & Bridleways
 - Pedestrian & Cycle Links**
 - Pedestrian Links**
 - Pedestrian & Cycle Links**
Connections dependent on land ownership
 - Pedestrian & Cycle Priority Crossings**
 - Play Space**
LEAP
 - Proposed Landscaping**
Buffer planting
 - Allocated Sites**
 - Illustrative Terminal Tower Location**
20m offset



Appendix B: Botanical Species Lists

Field margins

Scentless mayweed, *Tripleurospermum inodorum*

Pineappleweed, *Matricaria discoidea*

Creeping thistle, *Cirsium arvense*

Broad leaved dock, *Rumex obtusifolius*

Bramble, *Rubus fruticosus*

Hedge mustard, *Sisymbrium officinale*

Garlic mustard, *Alliaria petiolata*

Greater willowherb, *Epilobium hirsutum*

Hogweed, *Heracleum sphondylium*

Common nettle, *Urtica dioica*

Round leaf cranesbill, *Geranium rotundifolium*

False oat grass, *Arrhenatherum elatius*

Creeping buttercup, *Ranunculus repens*

Rough meadowgrass, *Poa trivialis*

Ryegrass, *Lolium perenne*

Greater plantain, *Plantago major*

Knotgrass, *Polygonum aviculare*

Catsear, *Hypochaeris radicata*

Perennial Sow Thistle, *Sonchus arvensis*

Shepherds purse, *Capsella bursa-pastoris*

White Dead Nettle, *Lamium album*

Dandelion, *Taraxacum officinale*

Field speedwell, *Veronica persica*

Creeping buttercup, *Ranunculus repens*

Grassland

Ragwort, *Senecio jacobaea*

Wild carrot, *Daucus carota*

Ribwort plantain, *Plantago lanceolata*

Rough meadow grass, *Poa trivialis*

Cocksfoot, *dactylis glomerata*
Lesser trefoil, *Trifolium dubium*
False oat grass, *Arrhenatherum elatius*
Catsear, *Hypochaeris radicata*
Curled dock, *Rumex crispus*
Willowherb species, *Epilobium* sp.
Broadleaved dock, *Rumex obtusifolius*
Mugwort, *Artemisia vulgaris*
Cotoneaster, *Cotoneaster horizontalis*
Spear thistle, *Cirsium vulgare*
Red fescue, *Festuca rubra*
Red clover, *Trifolium pratense*
Yellow oat grass, *Trisetum flavescens*
Creeping bent, *Agrostis stolonifera*
Smooth tare, *Vicia tetrasperma*
White clover, *Trifolium repens*
Yorkshire fog, *Holcus lanatus*
Dogwood, *Cornus sanguinea*
Field bindweed, *Convolvulus arvensis*
Zigzag clover, *Trifolium medium*
Lesser trefoil, *Trifolium dubium*
Scarlet pimpernel, *Anagallis arvensis*

Scrub, Hedgerows and Trees

Cherry laurel, *Prunus laurocerasus*
Cherry, *Prunus avium*
Ash, *Fraxinus excelsior*
Silver birch, *Betula pendula*
Willow, *Salix alba*
Hawthorn, *Crataegus laevigata*
Butterfly bush, *Buddleja davidii*
Bramble, *Rubus fruticosus*
Elder, *Sambucus nigra*

Sycamore, *Acer pseudoplatanus*

Leyland cypress, *Cupressus x leylandii*

Holly, *Ilex aquifolium*

Snowberry, *Symphoricarpos albus*

Dogrose, *Rosa canina*

Crab apple, *Malus sylvestris*

Blackthorn, *Prunus spinosa*

Oak, *Quercus robur*

Horse chestnut, *Aesculus hippocastanum*

Lombardy Poplar, *Populus alba*

Client: Nick Grant,
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Sample ID: ADAS-634 Condition on Receipt: Low Sediment Volume: Passed
Client Identifier: P2 Description: pond water samples in preservative
Date of Receipt: 16/06/2023 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	21/06/2023
Degradation Control [§]	Within Limits	Real Time PCR	21/06/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	21/06/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report Issued by: Dr Ben Maddison

Signed:

Signed:

Position: Director: Biotechnology Position: MD: Biotechnology

Date of preparation: 21/06/2023 Date of issue: 21/06/2023

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

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Sample ID: ADAS-689 Condition on Receipt: Good Volume: Passed
Client Identifier: P1 Description: pond water samples in preservative
Date of Receipt: 16/06/2023 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	20/06/2023
Degradation Control [§]	Within Limits	Real Time PCR	20/06/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	20/06/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN
Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
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Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

Appendix D: Bat static data

Date	Survey Hours	Total Av. per hour	Total Registrations	Common Pipistrelle			Myotis Species			Soprano Pipistrelle		
				Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
08/08/2025-13/08/2024	50	56.07	2818	2308	771	45.93	395	273	7.86	78	29	1.55
08/08/2024-13/08/2024	50	8.24	414	353	119	7.02	7	4	0.14	22	16	0.44
24/09/2024-29/09/2024	65	10.30	679	611	218	9.27	25	9	0.38	35	13	0.53
04/10/2024-09/10/2024	69	1.83	127	109	32	1.57	8	4	0.12	2	1	0.03

Date	Survey Hours	Total Av. per hour	Total Registrations	Noctule			Brown Long-eared			Nyctalus Species		
				Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour	Period Total	Peak Count	Av. Per Hour
08/08/2025-13/08/2024	50	56.07	2818	26	11	0.52	7	3	0.14	4	2	0.08
08/08/2024-13/08/2024	50	8.24	414	28	14	0.56	4	3	0.08	0	0	0.00
24/09/2024-29/09/2024	65	10.30	679	3	2	0.05	4	2	0.06	1	1	0.02
04/10/2024-09/10/2024	69	1.83	127	6	2	0.09	0	0	0.00	2	1	0.03

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