Land North of Barkby Road, Syston

Ecological Appraisal

Prepared by:
The Environmental Dimension Partnership Ltd

On behalf of:
Taylor Wimpey (UK) Ltd

November 2021
Report Reference
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Executive Summary

S1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Taylor Wimpey (UK) Ltd (hereafter referred to as 'the applicant'). This Appraisal considers the ecological implications of proposed development at Land North of Barkby Road, Syston (hereafter referred to as 'the site').

S2 The Site measures c.8.3 hectares (ha) and is centred approximately at Ordnance Survey Grid Reference (OSGR) SK 632 111, within the administrative boundary of Charnwood Borough Council. It is located along the eastern edge of the town of Syston in Leicestershire, c.8.3km north-east of Leicester city.

S3 The principal ecological features and habitats present within the site (identified through an Extended Phase 1 survey) are illustrated on **Plan EDP 1** and comprise two arable fields, bounded by species-poor, heavily managed hedgerows and wet and dry ditches.

S4 Ecological surveys were carried out at the site by EDP previously, in 2012 and 2014, as part of a wider strategic site. This previous survey data has been used to inform this Appraisal, where appropriate. Surveys were updated in 2018 and then again in 2021 for the current Site boundary, with update ecological survey work consisting of an Extended Phase 1 survey, breeding bird surveys, a great crested newt (*Triturus cristatus*) Habitat Suitability Index (HSI) assessment and bat activity surveys (manual transects and automated static detectors).

S5 The majority of the site is of low intrinsic ecological value (Site-level importance or less), such that development in these areas would have a minimal impact on biodiversity generally (although their suitability to support protected species is discussed within this report). However, the few scattered trees that are present are considered to be of Local ecological importance and will be retained and buffered from the development.

S6 The general abundance of birds throughout the site was low, with the majority of common species activity concentrated to field margins. Of those species of conservation concern identified during survey effort (five Red list and two Amber list species[1]), most are likely or confirmed to be breeding within the site, with the exception of mallard (*Anas platyrhyncos*). The remainder were present in low densities and were therefore not considered to represent significant populations. Overall, bird assemblage present is considered to be of no more than Local level importance.

S7 No bats or evidence of bats were found at the time of the ground-level visual assessment of the trees within the site. However, there were two trees on-site that were identified as having high potential to support roosting bats and one dead tree (ivy covered standing stump) with low bat roost potential. The bat assemblage recorded on-site is considered to be of moderate diversity, and fairly typical for an urban edge farmland site in

[1] Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, Vol. 108, 708-746.

Leicestershire. While common and widespread generalist species accounted for the vast majority of foraging and commuting activity, a small number of rarer species were also recorded. The bat population that utilises the site is considered to be of Local-level importance.

S8 The four waterbodies that are located within 500m of the site were assessed through an HSI assessment to be of 'Average' or 'Poor' suitability for great crested newts or are usually dry and therefore unable to be assessed. Surveys in 2012 found one of the ponds to be dry at the time of the survey and the other was fully surveyed with no great crested newts being found (the Sustainable Drainage System (SuDS) feature west of the site was not mentioned, and it is believed that it was not present at this time). Given the results of the previous surveys, the lack of records of great crested newt within 500m of the site, the results of the HSI assessment (past and present), the spatial separation and isolated nature of the aite and the presence of low-quality habitats on-site, it is considered highly unlikely that great crested newt are present within the site. On-site ditches and the SuDS feature to the west were dry during the optimal period for eDNA survey in 2021. Great crested newts are therefore not considered a constraint to development.

S9 From the outset of the design process, EDP has contributed to the design of the masterplan assessed by this report, which accompanies the planning application. Specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered in this report and outlined in **Section 4**. These measures include: those already embedded within the masterplan and Landscape Strategy (i.e. retention and buffering of the majority of the hedgerows/ditches and the mature trees); measures which should be incorporated at the construction stage (i.e. pre-commencement check for badgers (*Meles meles*) and sensitive clearance methodologies in relation to nesting birds and reptiles); those which should be designed and specified within the landscaping scheme and Ecological Construction Method Statement (ECMS) (i.e. new planting, creation of wildlife-friendly SuDS features and sensitive lighting scheme); and enhancement measures (i.e. bat and bird boxes and extensive new planting) to ensure that biodiversity value and opportunities for a range of protected and notable species are increased as a result of the proposed development.

S10 Provided all recommendations described within **Section 4** are implemented, the proposed development will be compliant with legislation and planning policy at all levels in relation to nature conservation.

Section 1
Introduction, Purpose and Context

1.1 This Ecological Appraisal has been prepared by The Environmental Dimension Partnership (EDP) on behalf of Taylor Wimpey (UK) Ltd (hereafter referred to as 'the applicant'). This Appraisal considers the ecological implications of proposed development at Land North of Barkby Road, Syston (hereafter referred to as 'the site').

Site Context

1.2 The site measures c.8.3 hectares (ha) and is centred approximately at Ordnance Survey Grid Reference (OSGR) SK 632 111, within the administrative boundary of Charnwood Borough Council. It is located along the eastern edge of the town of Syston in Leicestershire, c.8.3km north-east of Leicester, between the villages of Barkby and Queniborough. Bounding the site to the south is Barkby Road, with modern development and arable land beyond, to the east is Queniborough Road with arable land beyond, to the west is the edge of Syston town and to the north is further agricultural land.

1.3 The site comprises two arable fields, bounded by species-poor, heavily managed hedgerows and wet and dry ditches. The principal ecological features within the site (identified through site survey) are illustrated on **Plan EDP 1**.

1.4 The site has been subject to ecological surveys by EDP previously, in 2012 and 2014[2] as part of a wider strategic site and in 2018 and 2021 in its current form. This existing survey data has been used to inform this Appraisal, where appropriate.

Development Proposals

1.5 The development proposals will be the subject of an outline planning application of up to 195 new dwellings, together with open space, landscaping and drainage infrastructure, with all matters reserved except for access into the site from Barkby Road. The Landscape Strategy is provided at **Appendix EDP 1** to this report.

1.6 The site is an emerging allocation for residential development in the Charnwood Pre-submission Local Plan 2021–2037 under Policy DS3, site reference HA3. Policy DS3(HA3) Land north of Barkby Road, Syston allocates the site for 195 dwellings. It was previously the subject of an outline planning application to Charnwood Borough Council in summer 2018 (P/18/1366/2), which was subsequently withdrawn.

1.7 The ecological sensitivities of the site have influenced the final layout through an iterative design process. Thus, the masterplan incorporates a degree of 'inherent' mitigation to avoid or reduce the severity of potential ecological impacts.

[2]Report reference: EDP1702_01c Ecological Appraisal. December 2014

Scope of Appraisal

1.8 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 final masterplan (incorporating inherent mitigation) in the context of relevant legislation and planning policy. Finally, this Appraisal identifies the necessary additional measures to avoid, mitigate or provide compensation for potential impacts, and the mechanisms for securing such measures.

1.9 The remainder of this report is structured as follows:

- **Section 2** summarises the methodology employed in determining the baseline ecological conditions within and around the site (with further details provided within Appendices and on Plans where appropriate);

- **Section 3** summarises the baseline ecological conditions (with further details also provided within Appendices and on Plans where appropriate) and identifies and evaluates any pertinent ecological features/receptors;

- **Section 4** considers the potential impacts of the proposal on pertinent ecological features in the context of legislative and planning policy considerations. Recommended mitigation and enhancement measures are provided; and

- **Section 5** summarises the inherent and recommended additional mitigation measures and provides the overall conclusions of the Appraisal.

Section 2
Methodology

2.1 This section of the Ecological Appraisal summarises the methodologies employed in determining the baseline ecological conditions within and around the Site. The appraisal has been undertaken by appropriately qualified ecologists using relevant best practice methodologies wherever possible. Full details of the techniques and processes adopted are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Desk Study and Consultation

2.2 The 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.[3]

2.3 The desk study involved collating biodiversity information from the following sources:

- Leicestershire and Rutland Environmental Records Centre (LRERC); and
- Multi-Agency Geographic Information for the Countryside (MAGIC) website[4].

2.4 The desk study was undertaken during March 2018 and updated in September 2021 and involved obtaining the following information:

- International statutory designations (5km radius around site);
- National statutory designations (2km) (see **Plan EDP 2**);
- Non-statutory local sites (2km) (see **Plan EDP 3**);
- Annex II bat species[5] records (6km, 2018 only); and
- All other protected/notable species records (2km).

2.5 These search areas are considered sufficient to cover the potential zones of influence[6] of the proposed development in relation to designated sites, habitats and species.

[3] Species considered of key significance to sustain and improve biodiversity in England, as defined under Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006

[4] www.magic.gov.uk

[5] Bat species listed in Annex II of the EC Habitats Directive, namely Greater horseshoe, Lesser horseshoe, Barbastelle and Bechstein's bats

[6] Zone of Influence - the areas and resources that may be affected by the proposed development

2.6 In addition to the above, the views of the Local Planning Authority (LPA) Ecologist, Rupert Simms, were sought in February 2018, in respect of likely ecological sensitivities pertaining to the site and necessary survey scope. Further comments were received relating to the planning application submitted in 2018 (P/18/1366/2). All comments received from Rupert Simms are included as **Appendix EDP 2**).

Extended Phase 1 Survey

2.7 The survey technique adopted for the initial habitat assessment was at a level intermediate between a standard Phase 1 survey technique[7], based on habitat mapping and description, and a Phase 2 survey, based on detailed habitat and species surveys. The survey technique is commonly known as an Extended Phase 1 survey. This level of survey does not aim to compile a complete floral and faunal inventory for the site.

2.8 The level of survey involves identifying and mapping the principal habitat types and identifying the dominant plant species present in each principal habitat type. In addition, any actual or potential protected species or species of principal importance[8] are identified and scoped.

2.9 The Extended Phase 1 survey of the site was undertaken by a suitably experienced surveyor on 01 February 2018. Whilst February falls outside the most optimal period to carry out am Extended Phase 1 survey, given the habitat types present (i.e. primarily arable and species-poor hedgerows), this is not considered to be a limitation to the surveyor's ability to assess the ecological importance of the habitats present.

2.10 Furthermore, an update survey was carried out on 26 May 2021, which is within the optimal period to carry out this type of survey.

Detailed (Phase 2) Surveys

2.11 The scope of Phase 2 surveys undertaken at the site was defined following the initial studies described above (desk study and Extended Phase 1 survey) and in consultation with the LPA Ecologist. The surveys 'scoped in' are summarised in turn below and a brief explanation of those potential surveys 'scoped out' is provided thereafter.

Breeding Bird Surveys

2.12 The habitats present on-site offer potential to support nesting birds, particularly farmland species, and a number of records of protected/notable species were returned from the desk study. The site itself is relatively small, however, given that the arable fields (and

[7] Joint Nature Conservation Council (2004) *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit* (reprinted with minor corrections for original Nature Conservancy Council publication).

[8] Species considered of key significance to sustain and improve biodiversity in England, as defined under Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006

small sections of hedgerow) will be lost as a result of the development proposals, a pilot breeding bird survey was undertaken by an experienced ornithologist on 25 April 2018, with particular focus on any presence of notable ground-nesting bird species. Full details of the pilot breeding bird study are provided in **Appendix EDP 4**, and the results are shown on **Plan EDP 4**.

2.13 An update survey was undertaken on 26 May 2021, the details of which are also provided in **Appendix EDP 4**, and the results shown on **Plan EDP 5**.

Bat Surveys

2.14 The site does not contain any buildings that might support roosting bats, however, a number of mature trees are present. Accordingly, all of the trees within, and on the boundaries of the site were assessed for any evidence of, or potential for, roosting bats, by a bat-licensed ecologist on 01 February 2018, with reference to the Bat Conservation Trust's (BCT) Good Practice Guidelines (2016)[9]. During pre-application, the LPA Ecologist also recommended that trees with bat roost potential should be subject to an aerial inspection (climbing survey). However, as discussed later in this report, this was not deemed necessary at this stage in the planning process on the basis that all such trees are to be retained and buffered within the development layout.

2.15 The habitats present on-site were judged to be of low quality for foraging and commuting bats, so a full survey effort (i.e. optimum requirements according to BCT guidelines) to investigate bat activity within the site was not considered necessary. It was therefore agreed with the LPA Ecologist that three manually walked transect surveys (one of which is a dusk and dawn survey) spread between mid-April to mid-June, coupled with three deployments of two static automated bat detectors across the same time period, would provide sufficient information to enable a robust assessment of the bat activity at the site. A plan of the walked transect route and the locations of the static automated bat detectors are illustrated on **Plan EDP 6**. Full details of the bat surveys are provided in **Appendix EDP 5** and illustrated on **Plans EDP 7, 8** and **9**.

Great Crested Newt – Habitat Suitability Index (HSI) Assessment

2.16 There are two ponds and two SuDS features located within 500m of the site boundary; one pond is c.380m south-west, and the other pond is c.465m east. A dry balancing pond is located immediately adjacent to the pond in the south-west, and a drainage channel associated with the neighbouring residential estate lies c.15m west. The ponds were subject to surveys for great crested newts in 2012, with full surveys being carried out on the south-west pond and the other being dry throughout the survey period. No great crested newts were recorded in the south-west pond.

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

2.17 An HSI assessment was carried out on 01 February 2018, following the method developed by Oldham *et al*. (2000)[10], to assess the three waterbodies identified within 500m of the Site. The HSI assessment follows a standardised assessment criteria using habitat components such as water quality, fish/waterfowl presence and surrounding terrestrial habitat quality to derive a suitability score, or 'index'. Waterbodies with high scores are considered more likely to support great crested newts compared to those with lower scores. HSI scores and the inferred suitability of the pond to support great crested newts are described within **Table EDP 2.1**.

Table EDP 2.1: HSI Scores and Inferred Pond Suitability

HSI Score	Pond Suitability to Support Great Crested Newts
<0.5	Poor suitability
0.5–0.59	Below average suitability
0.6–0.69	Average suitability
0.7–0.79	Good suitability
> 0.8	Excellent suitability

Surveys Scoped Out

2.18 **Table EDP 2.2** summarises other survey types which, while commonly required as part of an Ecological Appraisal for development sites, were not considered necessary/appropriate in this case.

Table EDP 2.2: Ecology Surveys Scoped Out

Survey Type	Reasons for Scoping Out
Botanical Surveys (e.g. hedgerows, grassland)	Phase 1 survey information was sufficient to confirm habitat value, with no indication of particularly high value habitats present.
Badger	The surveys in 2012/2014 identified evidence of outlier badger setts within the wider strategic site to the south of Barkby Road. There was no evidence of badgers within the site, but there were several rabbit holes within the base of the northern boundary hedgerow. A check for any new badger setts was carried out when the site was visited for the bat activity surveys, and a pre-commencement check will be recommended within the Ecological Appraisal.

[10] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). *Evaluating the suitability of habitat for the Great Crested Newt* (Triturus cristatus). Herpetological Journal 10 (4), 143-155

Survey Type	Reasons for Scoping Out
Full Great Crested Newt Survey/eDNA	Although there are wet ditches present within the site, it is considered highly unlikely that these features support breeding great crested newts, given that they are only seasonally wet. These ditches were dry during the eDNA survey period (April–June) 2021. The SuDS feature 15m to the west of the site is a swale of planted vegetation that is mostly dry, except following very high volumes of rain. It was also dry during the eDNA survey period. Both ponds are located more than 250m away from the site boundary (considered to be the core dispersal zone around great crested newt breeding ponds). Furthermore, the pond to the south-west is separated from the site by a significant barrier to dispersal, namely Barkby Road and new development to the south. The other is 465m to the north-east, with Queniborough Road, Ridgemere Lane and intensively managed agricultural land in-between. No access was granted for an update HSI or eDNA survey. No great crested newts were found in 2012. EDP's HSI assessment in 2018 found these waterbodies to be of average and poor suitability to support great crested newts. Furthermore, there are no records of great crested newts within 500m of the site. Overall, the species is, therefore, considered to be absent from the site and it was considered unnecessary to carry out full great crested newt surveys to inform this Ecological Appraisal.
Reptiles	The field margins are very narrow and short, such that there is no suitable reptile habitat present within the Site. There is, however, reptile habitat present immediately to the north of the north-eastern part of the site boundary, and SuDS to the west. It is possible that reptiles (grass snake (*Natrix helvetica*)) may occasionally traverse the habitats on-site, but this Ecological Appraisal recommends appropriate precautionary mitigation measures (timings/methods) in **Section 4** to avoid/minimise possible harm to individual reptiles that may occur temporarily on-site during construction; the risk is considered to be very low in the absence of mitigation, however, such that detailed reptile surveys were considered unnecessary.
Water Vole (*Arvicola amphibious*)/Otter (*Lutra lutra*)	Although there are waterbodies on-site in the form of ditches, one of which sometimes contains running water (albeit very shallow), it is considered highly unlikely that otters or water voles would use the ditches within the site. The ditches are only seasonally wet. The Barkby Brook, which does provide suitable water vole/otter habitat, is located approximately 480m south and 490m south-west of the site. However, new development, agricultural land and the Barkby Road all occur between the brook and the site. Therefore, due to the low suitability of the on-site habitats for these species and the isolation from nearby suitable habitat in the wider landscape, it is considered highly unlikely that these species would be present on-site and, therefore, EDP considers it is unnecessary to carry out further surveys for these species.

Survey Type	Reasons for Scoping Out
Dormice (*Mucardinus avellanarius*)	There are no records of dormouse within 2km of the Site and the species is thought to be absent from Leicestershire. Furthermore, the hedgerows on-site are of poor quality to support dormice, and there are no woodland blocks that are connected to the site. It is therefore considered highly unlikely for dormice to be present onsite and further detailed dormouse surveys were not deemed necessary.

Section 3
Results (Baseline Conditions)

3.1 This section of the Ecological Appraisal summarises the baseline ecological conditions determined through the course of desk-based and field-based investigations described in **Section 2**. In particular, this section identifies and evaluates those ecological features/receptors that lie within the site's potential zone of influence, and which are pertinent in the context of the proposed development. Further technical details are, where appropriate, provided within Appendices and on Plans to the rear of this report.

Designated Sites

3.2 Information regarding designated sites was obtained during the desk study from the MAGIC website and LRERC. Statutory designations (those receiving legal protection) and non-statutory designations (those receiving planning policy protection only) are discussed in turn below.

Statutory Designations

3.3 Statutory designations represent the most significant ecological receptors, being of recognised importance at an international and/or national level. International designations include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites. National designations include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs).

3.4 No part of the site is covered by any statutory designations and there is just one such designation within the site's potential zone of influence: Gipsy Lane Pit SSSI, which is designated for its geological interest. There is therefore no constraint posed by such designations and these are not discussed further in this Appraisal. The location of SSSIs in relation to the site is shown on **Plan EDP 2**.

Non-statutory Designations

3.5 Non-statutory designations are also commonly referred to in planning policies as 'local sites', although in fact these designations are typically considered to be important at a county level. In Leicestershire, such designations are named Local Wildlife Sites (LWS), and these are split into those that are Notified (those that have been ratified by a local panel of experts), those that are Candidates (those that fit the LWS criteria but have not been ratified yet), Potential LWSs (where it is thought the site is likely to meet the LWS criteria, but further survey is needed to clarify ecological value) and Historic LWSs (LWSs that were designated in the 1980s but ecological value has not been confirmed). Additional designated sites which should be considered at this level include Local Nature Reserves (LNRs) and Ancient Semi-natural Woodland (ASNW) where these are not covered by other designations.

3.6 No part of the site is covered by any LWS's. However, there are a number of such designations within the site's potential zone of influence (2km). A plan of non-statutory sites in the local area (beyond 2km), using data provided by LRERC, is included as **Plan EDP 3**. A summary of the 12 notified LWSs within 2km is provided within **Table EDP 3.1**. Also included are summaries of a further 17 potential LWS's all of which, except one, are historical, i.e. have not been revisited since the 1980s, and one candidate LWS.

Table EDP 3.1: LWS's within 2km of the Site

Site Reference*	Name of Designation	Distance and Direction from Site	Reason for Designation/Interest Feature(s)
Notified LWSs			
25519	Ridgemere Lane Pond	1.01km east	Pond.
33769	Mere Lane Field	1.09km north-east	Mesotrophic grassland.
25513	Syston Marsh Extension	1.32km north-west	Wet woodland and marshy grassland.
25511	Syston Marsh	1.35km north-west	Wet mesotrophic grassland and species-rich hedgerows.
25512	Crane's Hole	1.44km north-west	Pond.
25524	Pond North of Barkby Holt Lane	1.45km south-east	Pond.
25523	Plantation Pond North of Barkby Holt Lane	1.59km south-east	Pond.
25525	Queniborough Brook Fields 1	1.61km north-east	Mesotrophic grassland, brook and mature trees.
63139	River Wreake within Charnwood Borough	1.79km north-west	Large river corridor.
25520	Pond North of Barkby Holt Lane	1.99km south-east	Pond.
Potential LWSs (Recent)			
91380	Queniborough, Mere Lane Fields	765m north-east	Mesotrophic grassland – three semi-improved neutral grassland fields supporting a wide range of floral diversity.
Potential LWSs (Historic)			
10093	Woodland	260m south	Woodland.
10094	Barkby Brook	490m south-west	Brook.
10092	Redlands Farm Pond	600m east	Pond.
10095	Woodland	650m south-east	Woodland.
10186	Pond	845m north-east	Pond.
10116	Barkby Brook	1.32km south-east	Brook.
10188	Syston, Gravel pits North of settlement	1.51km north-west	Lake.
10185	Queniborough Brook	1.53km north-east	Small stream.
10275	Syston Triangle Nature Reserve	1.56km north-west	No description or recent survey data.
10098	Woodland	1.67km south-east	Woodland.
10187	Queniborough	1.71km north-east	Woodland.

Site Reference*	Name of Designation	Distance and Direction from Site	Reason for Designation/Interest Feature(s)
	woodland strip east of brook near Hall		
10183	Queniborough Brook and marsh/ponds	1.80km north-west	Stream.
10270	Syston, grassland	1.81km north-west	Grassland.
10300	Thurmaston, railway cutting South of Barkby Thorpe Lane	1.83km south-west	Grassland.
10135	Dismantled railway	1.86km north-west	No description or recent survey data
Notified LWS			
25519	Ridgemere Lane Pond	1.01km east	Pond
33769	Mere Lane Field	1.09km north-east	Mesotrophic grassland.
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25520	Pond North of Barkby Holt Lane	1.99km south-east	Pond
Potential LWS			
91380	Queniborough, Mere Lane Fields	765m north-east	Mesotrophic grassland – three semi-improved neutral grassland fields supporting a wide range of floral diversity.
Candidate LWS			
92018	Land opposite Pukka Pies, Syston	1.49km north-west	Grassland with nine mesotrophic grassland and five wet grassland indicator species recorded.
Historic (Potential) LWS			
10093	Woodland	260m south	Woodland
10094	Barkby Brook	490m south-west	Brook
10092	Redlands Farm Pond	600m east	Pond
10095	Woodland	650m south-east	Woodland
10186	Pond	845m north-east	Pond
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10300	Thurmaston, railway cutting South of Barkby Thorpe Lane	1.83km south-west	Grassland
10135	Dismantled railway	1.86km north-west	No description or recent survey data
10184	Gaddesby Brook	1.90km north-east	Woodland

3.7 Given the spatial separation, the limited quality of on-site habitats and the lack of any direct hydrological links with any of the non-statutory designations, it is considered highly unlikely that any adverse impacts will occur at any of these LWSs as a result of the proposed development. There is therefore no constraint posed by such designations and these are not discussed further in this Appraisal.

Habitats

3.8 Information on habitats within the site was obtained during the Extended Phase 1 survey. The distribution of habitat types within the site is illustrated on **Plan EDP 1**. In addition, detailed descriptions of these habitat types, together with illustrative photographs, are provided in **Appendix EDP 3**. A summary, and qualitative assessment, of these habitats is provided in **Table EDP 3.2**.

Table EDP 3.2: Summary of Habitats within the Site

Habitat or Feature	Distribution within Site	Intrinsic Ecological Importance	Potential/Confirmed Importance to Protected Species				
			Spp.	Breeding	Foraging	Refuge	Dispersal
Species-poor hedgerows	The site is bounded by species-poor hedgerows on all sides, as well as one across the centre of the site between the two fields.	**Site**, owing to low species-richness but provides habitat connectivity.	Birds	●	●	●	
			Bats		●		●
			Reptiles	●	●	●	●

Habitat or Feature	Distribution within Site	Intrinsic Ecological Importance	Potential/Confirmed Importance to Protected Species				
			Spp.	Breeding	Foraging	Refuge	Dispersal
Arable	The vast majority of the site comprises two large arable fields.	**Negligible**, owing to low species-richness, intensive management and low distinctiveness.	Birds	●	●	●	
Wet ditches	There are ditches adjacent to the majority of the hedges; mostly stagnant, seasonally wet ditches, with one across the centre of the site (adjacent to H6), which is very shallow but has an inflow.	**Site**, owing to seasonal nature of the ditches and lack of aquatic vegetation.	Birds		●		●
			Bats		●		●
Scattered trees	Few mature trees within some of the hedgerows around the boundaries of the site, as well as a very large, mature oak (*Quercus* sp.) tree in the middle of the northern field.	**Local,** owing to their ecosystem services.	Birds	●	●	●	
			Bats	●	●	●	

3.9 The desk study revealed that there are no known Priority Habitats[11] within or in close proximity to the site.

3.10 As noted within **Table EDP 3.2**, the majority of landcover within the site is arable, which is of negligible intrinsic ecological importance. However, the mature trees are considered to be of local importance, and the hedgerows and ditches of site importance. The arable land was not sown with crops during 2021 and was therefore left fallow throughout the spring and summer. The habitats of negligible intrinsic ecological importance may require consideration in relation to their importance in maintaining populations of protected and/or notable species. This is discussed further below.

Protected and/or Notable Species

3.11 The likelihood of presence, or confirmed presence, of protected/and or notable wildlife species within the site is summarised below with reference to desk study records, habitat

[11] Habitats considered of key significance to sustain and improve biodiversity in England, as defined under Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006

suitability and detailed surveys, where relevant. Further details are made available within appendices and plans where referenced.

3.12 Where a particular species or taxonomic group is/has been confirmed to be present, or presence is inferred based on habitat suitability, the ecological importance or significance of the population or assemblage has been assessed on a geographical scale.

Breeding Birds

3.13 The desk study returned a number of protected and notable bird species records from within 2km of the site. Several of these records relate to Red and Amber list species[12]. However, many of these are wetland, woodland or other specialist species unlikely to be found within open farmland or records of passage migrants, vagrants or winter migrants. Those records that are considered to be potentially pertinent to the site owing to the arable land, hedgerows and ditches include yellow wagtail (*Motacilla flava*), spotted flycatcher (*Muscicapa striata*), skylark (*Alauda arvensis*), reed bunting (*Emberiza schoeniclus*), yellowhammer (*E. citrinella*), cuckoo (*Cuculus canorus*), kestrel (*Falco tinnunculus*), house and tree sparrow (*Passer domesticus and Passer Montanus*), hobby (*Falco subbuteo*), dunnock (*Prunella modularis*), turtle dove (*Streptopelia turtur*), linnet (*Linaria cannabina*), lapwing (*Vanellus vanellus*), bullfinch (*Pyrrhula pyrrhula*), song thrush (*Turdus philomelos*), starling (*Sturnus vulgaris*), stock dove (*Columba oenas*) and barn owl (*Tyto alba*). A single record of skylark was returned for within the site and noted to be probably breeding.

3.14 Given the presence of habitats within the site with potential to support protected or notable species of breeding bird, principally declining farmland species, a pilot breeding bird survey was undertaken at the start of the breeding season in 2018 to provide an indication of the species present and determine whether the full suite of breeding bird surveys would be necessary. However, owing to the predominance of arable land and the limited extent of other habitats within the site, the potential to support a valuable assemblage or any scarce/protected species was considered to be relatively low.

3.15 The pilot breeding bird survey in 2018 recorded 18 species of bird within the site including 3 on the Red list and 2 on the Amber list for conservation concern. The update survey in 2021 recorded 21 species, including 4 on the Red list and 1 on the Amber list. The total number of species recorded over both survey visits was 25, including 5 on the Red list and 2 on the Amber list. The results are summarised in **Table EDP A3.3** and on **Plans EDP 4** and **5**, which show registrations made during the survey only; these do not relate to inferred territories.

[12] Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R..D., Lock, L.., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R..D. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, Vol. 108, 708-746.

Table EDP A3.3:Protected/Notable Bird Species Recorded During Bird Surveys within the Site

Species	Conservation Status[13]	On-Site Status (2018)	On-site status (2021)
Mallard (*Anas platyrhynchos*)	Amber List	A single individual was flushed from the middle of the Site, no breeding habitat exists for this species.	Not recorded
Lapwing (*Vanellus vanellus*)	Red List/NERC act S.41	Not recorded.	Three adults were recorded, along with a single juvenile, indicating confirmed breeding within the site.
Skylark (*Alauda arvensis*)	Red List/NERC act S.41	Two singing males were heard over the site, over the northern and southernmost fields. They are likely to be breeding.	Single individual recorded singing over land to the south of the site.
Dunnock (*Prunella modularis*)	Amber List/ NERC act S.41	A single singing male was recorded in the north of the site. Ample suitable habitat exists around the boundaries.	A single male was recorded singing on the western boundary.
House sparrow (*Passer domesticus*)	Red List/NERC act S.41	Not recorded.	A small group was recorded along the western boundary, associated with the residential development there.
Linnet (*Linaria cannabina*)	Red List/NERC act S.41	A pair were recorded along the southern hedgerow within suitable habitat.	Not recorded.
Yellowhammer (*Emberiza citrinella*)	Red List/NERC act S.41	Two singing males were recorded within hedgerows and a single female carrying food into a nest site (indicating confirmed breeding).	Males were recorded within hedgerows on the southern and northern boundaries of the site.

3.16 General abundance of birds throughout the site was low, with the majority of activity concentrated to field margins. The majority of common species were recorded along the western boundary with existing residential development. Of the species of conservation concern, most are likely or confirmed to be breeding within or dependent upon the site, with the exception of mallard, for which there is no suitable breeding habitat. The

[13] Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L.., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds, Vol. 108, 708-746.

remainder were present in low densities and were therefore not considered to represent significant populations and the bird assemblage present is considered to be of no more than Local level importance.

3.17 The presence of breeding lapwing during 2021 is considered to be a product of the field being left fallow. In previous years (i.e. normal function of the field), the cropping regime is considered to have been too intensive to allow this species to successfully breed.

Bats

3.18 LRERC returned records for six species of bat within 2km of the site (as well as additional unidentified bat and unidentified pipistrelle records), namely: common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P.pygmaeus*), noctule (*Nyctalus noctule*), brown long eared bat (*Plecotus auritus*), Daubenton's bat (*Myotis daubentonii*) and whiskered bat (*Myotis mustacinus*). There is one record of an Annex II[14] species: the barbastelle bat (*Barbastella barbastellus*) that was recorded in 2011 c.4.9km north-west of the site, i.e. separated from the site by the whole of Syston town and the A46.

Roosting

3.19 No bats or evidence of bats were found at the time of the ground-level visual assessment of the trees within the site. However, there were two trees on-site (T2 and T3[15], **Plan EDP 1**) that were identified as having high potential to support roosting bats and one dead tree (ivy covered standing stump) with low bat roost potential (T1). Further details are provided in **Appendix EDP 5**.

Foraging/Commuting

3.20 Detailed results from the bat activity surveys are provided in **Appendix EDP 5**. The location of the static bat detectors and the transect route are illustrated on **Plan EDP 6** and the distribution of bat activity recorded across the site during the transect surveys in 2018 and 2021 is illustrated on **Plans EDP 7–10**.

Manual Transects

3.21 The April 2018 transect survey was undertaken at dawn, rather than dusk, in order to avoid unsuitable weather conditions that occurred at dusk on the scheduled date, but the conditions at dawn were suitable, with no rain, a light-moderate breeze and 9°C. Although April is the earliest month in the bat activity survey season, so activity levels are generally often low in this month, and the Midlands are known for its paucity of bats, some level of bat activity would be expected. However, no bats at all were recorded by either surveyor during the April transect.

[14] Referring to those species listed on Annex II of the Habitats Directive for which internationally protected Special Areas of Conservation (SACs) are selected

[15] With reference to EDP's Arboricultural Assessment, T2 referred to above is labelled T13 on the Tree Constraints Plan, and T3 above is T10.

3.22 The dusk and dawn transect survey undertaken in May 2018 recorded moderate levels of commuting and foraging bat activity, principally commuting along the hedgerows, particularly along H6 across the middle of the Site, and foraging behaviour around the large oak tree (T2). The activity recorded was largely of common pipistrelle bats, with occasional noctule and *Myotis* sp. bats, and one call from a rarer Nathusius' pipistrelle (*Pipistrellus nathusii*).

3.23 The dusk transect survey in June 2018 recorded moderate levels of commuting and foraging bat activity, comprised of four bat species, namely common pipistrelle, soprano pipistrelle, noctule and *Myotis* sp. The majority of activity recorded was of common pipistrelles. There was less activity recorded along the central hedgerow (H6) during this survey, with the highest levels of activity focussed along the northern hedgerow and around the large oak tree in the middle of the northern field.

3.24 Surveys in June and September 2021 recorded low to moderate levels of activity across the site and with a similar distribution, although species were limited to soprano and common pipistrelle and noctule. Activity was focussed along hedgerows, particularly in the south of the site.

Static Automated Detectors

2018

3.25 Very few bat echolocations were recorded on the static detectors that were deployed on-site in April 2018 – only eight calls in total were recorded by both detectors over five nights. However, three species were identified from those eight calls, which were: common pipistrelle, noctule and *Myotis* sp.

3.26 As with the manual transects, a much higher level of bat activity (albeit still moderate) was recorded on the detectors that were deployed in May, compared to April (which is expected) – 411 calls in total. The highest levels of activity were recorded at static detector location 2 (**Plan EDP 6**) on hedgerow H6, which bisects the site (252 recordings during the May recording period). Lower levels were detected at the other location, between T2 and T3 (159 recordings during the May recording period). These results suggest that hedgerow H6 is used as a navigational aid across the site.

3.27 The static detectors that were deployed in June 2018 recorded bat activity of six species, namely common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, *Myotis* sp. and Leisler's (*Nyctalus leislerii*) bat. Contrary to the May static detector results, the static detector deployed in location 1 (between trees T2 and T3 on the northern boundary) in June recorded more than twice as many bat calls than the one deployed in location 2.

2021

3.28 Bat activity was similar in May 2021 as in 2018, with both detectors recording a total of 279 calls from 5 species (common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule and serotine (*Eptesicus serotinus*)).

3.29 Activity during the September survey was slightly higher, with a total of 802 calls being recorded, the vast majority of which being common or soprano pipistrelle. Other species recorded included Leisler's bat, brown long-eared bat, noctule and a *Myotis* sp. Activity was fairly evenly split between detector locations during both survey periods.

General Activity

3.30 Over the course of the combined activity surveys an assemblage of seven bat species was recorded, with five species recorded during the transect surveys and seven species recorded during the static detector surveys, as summarised in **Table EDP 3.4**.

Table EDP 3.4: Summary of bat activity survey results 2018 and 2021

Species	Status[1]	2018				2021			
		Static Detectors		Transect Surveys		Static Detectors		Transect Surveys	
		Number of Calls	% of Calls	Number of Calls	% of Calls	Number of Calls	% of Calls	Number of Calls	% of Calls
Common pipistrelle *(Pipistrellus pipistrellus)*	Common and widespread.	1,234	76	408	89	911	84	42	79
Soprano pipistrelle *(Pipistrellus pygmaeus)*	Common and widespread; UK Priority Species.	51	3	23	5	85	8	7	13
Myotis sp.	Dependent on species.	16	1	2	<1	6	<1	0	0
Noctule *(Nyctalus noctula)*	Common and widespread; UK Priority Species.	310	19	22	5	71	7	4	8
Leisler's *(Nyctalus leislerii)*	Widespread but uncommon.	3	<1	0	0	3	<1	0	0
Brown long-eared *(Plecotus auritus)*	Common and widespread; UK Priority Species.	5	<1	0	0	1	<1	0	0
Nathusius' pipistrelle (*Pipistrellus nathusii*)	Rare, but widespread.	9	1	1	<1	0	0	0	0
Serotine (*Eptesicus serotinus*)	Infrequent but widespread in southern Britain.	0	0	0	0	4	<1	0	0
Total Number of Calls		**1,628**		**456**		**1081**		**53**	

[1] Status derived from National Bat Monitoring Programme Annual Report 2020 - https://www.bats.org.uk/our-work/national-bat-monitoring-programme/reports/nbmp-annual-report - accessed 21/10/21

3.31 As shown in **Table EDP 3.4**, the most common British bat species at a National and Local level, namely common pipistrelle, accounted for the vast majority of records (76-84% of static detector records and 79-89% of transect recordings). There was one rare species recorded within the site, namely the Nathusius' pipistrelle, which has not been recorded in the area before according to the desk study that was returned by LRERC. However, this makes up 1% of the total recordings. There are also three recordings of a Leisler's bat in both 2018 and 2021, which although widespread, is not common in Leicestershire and has also not been recorded in the area before.

3.32 *Myotis* sp. calls cannot be separated via sonogram analysis, however, it is highly unlikely that any of the *Myotis* sp. calls were from a Bechstein's bat (an Annex II species), as this species is largely associated with woodland habitat and Leicestershire is not within its known geographical range.

3.33 The bat assemblage recorded on-site is considered to be of moderate diversity, and fairly typical for an urban edge farmland site in Leicestershire. While common and widespread generalist species accounted for the vast majority of foraging and commuting activity, a small number of rarer species were also recorded.

3.34 The transect and automated detector survey results suggest that the majority of bat activity was recorded along the hedgerows and around T2, with particular focus along the central ditch and hedgerow H6.

3.35 Based on the findings summarised above, the bat population that utilises the site is considered to be of Local-level importance.

Dormice

3.36 There are no records of dormouse within 2km of the site, and the publication 'The State of Britain's Dormice in 2016'[16], suggests that dormice are considered absent from Leicestershire. Furthermore, the hedgerows on-site are of poor quality (species-poor and intensively managed) and are not connected to any woodland blocks. Therefore, dormice are considered to be absent from the site and not a constraint to development.

Water Vole/Otter

3.37 There were 6 records of water vole and 13 records of otter returned by LRERC within the search area. The most recent otter record was a record of a spraint in 2010 from next to Beedles Lake and Queniborough Brook c.1.8km north-west of the site. The closest otter record was from Syston Brook c.1.1km south-west of the site from 2007. This brook is not directly connected to the site and there is agricultural land and new development between. The water vole records are all historic, with the most recent being recorded in 2000 c.1.5km north-east of the site.

[16] D. Wembridge, N. Al-Fulajj & S. Langton. *The State of Britain's Dormice 2016*. The People's Trust for Endangered Species, 2016. https://ptes.org/wp-content/uploads/2016/09/State-of-Britains-Dormice-2016.pdf

3.38 Although there are waterbodies on-site in the form of ditches, one of which occasionally contains running water (albeit very shallow), it is considered highly unlikely that otters or water voles would use the ditches within the site. The ditches are only seasonally wet and do not have steep muddy banks for burrow digging and have only very narrow grass margins adjacent to arable land. The Barkby Brook, which does provide suitable water vole/otter habitat, is located approximately 480m south and 490m south-west of the site. However, new development, agricultural land and the Barkby Road all occur between the brook and the site.

3.39 Therefore, due to the low suitability of the on-site habitats for these species and the isolation from nearby suitable habitat in the wider landscape, EDP considers these species to be absent from the site and therefore not a constraint to development.

Badgers

3.40 There were many records of badger returned in the data report by LRERC. Furthermore, the previous ecological work that was carried out on the wider strategic site (that included the site) located five active outlier badger setts, with the closest sett (and latrine) being c.50m south of the site, across the Barkby Road. A record of badger was also returned in the field to the north of the site.

3.41 A thorough search for any evidence of use by badgers within the site was carried out during the Extended Phase 1 survey, and subsequent site visits for bat surveys, with no badger setts or other signs being found. There were several rabbit holes along the northern hedgerow on-site (H2).

3.42 As there are known badger clans in the area it is likely that badgers occasionally traverse the site. Furthermore, there are opportunities for sett-building within and around the boundaries of the site, such that the future presence of badgers and their setts cannot be ruled out.

Great Crested Newts

3.43 There are many records of great crested newt within 2km of the site, dated between 1996–2014. However, the closest record was from c.970m east of the site. Furthermore, great crested newt surveys of the ponds in the area associated with the wider strategic site carried out in 2012 included the two ponds that were identified as being within 500m of the site. The large pond that is located c.380m south-west of the site (hereafter referred to as Pond 1), separated from the site by new development, agricultural land and the Barkby Road, was subject to full great crested newt surveys in 2012 and no evidence of great crested newts was found. The small pond that is located c.465m north-east of the site (hereafter referred to as Pond 2), is separated from the site by the Queniborough Road, Ridgemere Lane and agricultural land, was dry throughout the survey period in 2012 and an HSI assessment carried out at the time, found that this pond was of 'Poor' suitability for great crested newts.

3.44 All of the waterbodies that are located within 500m of the site boundary were visited in 2018, in order to carry out an HSI assessment. The HSI scores are given in **Table EDP 3.5**.

Table EDP 3.5: HSI Assessment of the Ponds within 500m of the Site

HSI Suitability Indices	Pond 1	Pond 2	SuDS
Location	1	1	1
Pond area	0.8	1	1
Pond drying	0.9	0.1	0.1
Water quality	0.67	0.33	0.33
% Shade	1	0.2	1
Waterfowl	0.67	1	1
Fish	0.33	1	1
No. of ponds in 1km/3.14	0.4	0.9	0.67
Terrestrial habitat	0.33	0.33	0.33
Macrophyte cover	0.9	0.3	0.8
HSI Score $(SI_1*SI_2*SI_3*SI_4*SI_5*SI_6*SI_7*SI_8*SI_9*SI_{10})^{1/10}$	0.64	0.48	0.6
Suitability for great created newt	**Average**	**Poor**	**Average**

3.45 The 2018 HSI assessment reached the same conclusion as previous survey work carried out in 2012, i.e. 'Average suitability' for Pond 1 and 'Poor suitability' for Pond 2. There has therefore been no change to the habitat condition of the ponds themselves or the surrounding terrestrial habitats since 2012, except that new development has been constructed between the south-western pond and the site, which further reduces the likelihood of great crested newt being present within the site.

3.46 The modern SuDS feature to the west of the site was not mentioned in the previous report, which may be an indication that it had not been created at that time. The SuDS, being a relatively new habitat, which holds very little water most of the time except following high volumes of rainfall and has built up development on both sides other than a narrow strip of mown grass, has 'Average' suitability for great crested newt. However, given the spatial separation, the dispersal barriers/isolated nature of the feature and the lack of great crested newt records within 500m of it, it is considered highly unlikely that this SuDS feature has become colonised by great crested newt.

3.47 Given the results of the previous surveys, the lack of records of great crested newt within 500m of the site, the results of the HSI assessment (past and present), and the low quality of on-site habitats, it is considered highly unlikely that great crested newt are present within the site. Great crested newt are therefore not a constraint to development.

Reptiles

3.48 The desk study found ten records of grass snake within the 2km search area around the site. No other reptile species records were returned in the data report from LRERC.

3.49 The field margins on-site are very narrow, and were short at the time of the survey, and are therefore of very limited suitability for reptiles. Potential reptile habitat is present just

off-site adjacent to the north-eastern site boundary, and sub-optimal habitat for grass snake occurs in the SuDS feature to the west of the site.

3.50 It is possible that reptiles, particularly grass snake, may occasionally traverse the hedgerows and ditches within the site. However, given the limited suitability of on-site habitats, the likely low numbers of reptiles that may use the site would be of no greater than Site-level importance.

Other Mammals

3.51 During one of the bat transect surveys in 2018, a hedgehog (*Erinaceus europaeus*) was observed close to the end point of the transect route (see **Plan EDP 6**). Hedgehogs are a Priority Species in the UK, such that the species is considered to be important at a Site level.

Summary of Key Issues Arising from Survey Findings

3.52 Based on the survey findings described above, the key ecological features/receptors pertinent to the development proposals are as follows:

- Farmland breeding birds: assemblage of Local-level importance;
- Bat roost potential in three trees on-site;
- Bat foraging/commuting: moderate bat assemblage of Local-level importance;
- No evidence of current presence of badgers, but potential for new setts to be built onsite prior to commencement of development;
- Potential occasional presence of grass snake on-site, Site-level importance; and
- Presence of a hedgehog, Site-level importance.

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Section 4
Predicted Impacts and Mitigation

4.1 This section of the Ecological Appraisal considers the likely impacts of the Landscape Strategy included as **Appendix EDP 1** on the existing ecological resource. Where impacts cannot be avoided by inherent mitigation alone, additional mitigation or enhancement measures are recommended which, if implemented, would as a minimum enable the proposed development to meet legislative and/or planning policy requirements.

4.2 In accordance with the Natural Environment and Rural Communities (NERC) Act 2006, within England, Local Planning Authorities have a statutory duty to have regard to effects upon biodiversity when exercising their functions; this includes consideration of effects upon ecological features such as designated sites, and Priority Habitats/Priority Species when determining planning applications. In accordance with planning policy at all levels, Local Planning Authorities must also consider whether or not 'significant harm' to biodiversity may occur due to effects upon such ecological features. This, and the statutory protection afforded to certain designated sites and species, is explored in further detail below.

4.3 EDP's overall summary and conclusions, based upon the above, are given in **Section 5**.

Habitats

4.4 There are several mechanisms through which habitats receive protection in addition to the statutory and non-statutory designated site frameworks. For instance, certain habitats are identified in policies within the National Planning Policy Framework (NPPF). Furthermore, the NPPF states:

"180. when determining planning applications, local planning authorities should apply the following principles:

a) If significant harm to biodiversity resulting from a development cannot be avoided (through locating on alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

c) development proposals resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity improvements in and around developments should be integrated as part of their design, especially where

this can secure measurable net gains in biodiversity or enhance public access to nature where this is appropriate."

4.5 At a Local level, Charnwood Borough Council's Local Plan 2011–2028 Core Strategy (Adopted November 2015) includes Policy CS13 *Biodiversity and Geodiversity*, which states:

"We will expect development proposals to consider and take account of the impacts on biodiversity and geodiversity, particularly with regard to:

- *…*
- *…*
- *…*
- *UK and Local Biodiversity Action Plans priority habitats and species*
- *…*
- *ecological networks"*

4.6 Habitats within the site and along the site boundaries have been assessed through an Extended Phase 1 survey. The habitats found on-site comprise arable fields, hedgerows, scattered trees and seasonally wet ditches.

4.7 The majority of the site comprises land of low (Site-level importance or less) intrinsic ecological importance, such that development in these areas would have a minimal impact on biodiversity generally (although their suitability to support protected species is given in the protected species section below). However, the few scattered trees that are present are considered to be of Local level ecological importance.

4.8 These locally valuable habitats do not pose an 'in principle' constraint to the development. However, it is recommended that any future development should aim to retain, and buffer, these features and compensate for any losses with enhancement and new habitat creation elsewhere on the site to deliver a net gain in biodiversity.

4.9 As a result of an iterative design process in which ecological sensitivities were considered, the few mature trees present have been retained within the proposed scheme, with a green corridor leading between T2 and T3, and into the greenspaces of the wider landscape beyond, to the north of the site.

4.10 Furthermore, the majority of the hedgerows will be retained, aside from a section to be lost on the southern site boundary (in order to allow vehicular access into the site), and two small sections to be lost in the central hedgerow for primary and secondary access routes, totalling around 46m.

4.11 To avoid damage/disturbance of retained features during construction, it is recommended that Ecological Protection Zones (EPZs) with an appropriate buffer 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 temporary protective fencing and signage. It is recommended that details of such measures and their implementation are delivered through an Ecological Construction Method Statement (ECMS) secured by a suitably worded planning condition.

4.12 Relatively minor losses of hedgerow are unavoidable. However, given that the majority of the site is considered to be of negligible intrinsic ecological importance (albeit of some importance to certain ground-nesting farmland bird species), there is scope for habitat enhancement, restoration and creation within proposed public open spaces. The following recommendations have been made in this respect, incorporated into the Landscape Strategy for the site (see **Appendix EDP 1**) and assessed through the Defra Biodiversity Metric 3.0:

- New native planting, including c.163 street trees (as indicated on the Landscape Strategy), 0.38km of new, species-rich hedgerows, 0.23ha of woodland and shrub planting to provide a more diverse foraging resource for a range of species, including foraging bats, birds, mammals, etc.;

- Enhancing/strengthening approximately 0.48km of existing hedgerows with a greater diversity of species, and applying a more sympathetic management regime;

- 1.52ha of new wildflower grassland areas, plus 0.76ha of wildlife friendly amenity grassland using flowering lawn mixes; and

- Creation of wildlife-friendly SuDS features, including at least one that contains an area of approximately 0.03ha of permanently wet pond (as advised by Rupert Simms at Charnwood Borough Council). These features will include areas of marginal planting measuring approximately 0.02ha and wet grassland measuring approximately 0.22ha.

Biodiversity Net Gain

4.13 The proposed development will include the loss of arable land, which will be replaced with developed land, vegetated gardens and the habitats set out above. The following assumptions have been made in order to complete the biodiversity net gain (BNG) assessment:

- All new habitats will achieve ‘moderate’ condition, with the exception of ‘vegetated gardens’, which have been assessed as achieving ‘poor’ condition due to the lack of control over their status post-development, woodland and street trees, which have been assessed as achieving ‘fairly poor’ condition due to their presence within an urban setting, lack of age and structure;

- Developed areas will be split 70:30 between 'developed land; sealed surface' and 'vegetated gardens', with reference to the guidance on outline applications set out in the User Guide published alongside the metric[17]; and

- Where hedgerows are input as "enhanced" within the metric, it is assumed that this will be achieved through gap planting using an appropriate mix, increasing the species diversity of the hedge.

4.14 Through the above measures, it is considered that the site is considered capable of achieving a net gain to biodiversity of 2.49 units (14.94%) and 4.33 linear units (57.04%).

4.15 The worked metric has been included as **Appendix EDP 6** and indicative post-development habitats are illustrated on **Plan EDP 12**.

4.16 Such measures can and should be incorporated into future Reserved Matters applications. Specifications for new planting and other habitat creation should be provided with a detailed Soft Landscaping Scheme secured by planning condition. In addition, it is recommended that measures to restore and enhance existing habitats, to ensure successful establishment of new habitats, and to maintain the value of all ecological features in the long-term are detailed within an Ecological Management Plan (EMP) secured by planning condition.

4.17 Some of the habitats present within the site, including those of low or negligible intrinsic importance, require further consideration in relation to supporting protected species, as discussed below.

Protected and/or Notable Species

4.18 Certain species receive legal protection in the United Kingdom and are commonly known as 'protected species'. In reality, the level of protection for different species varies considerably, from protection solely against 'killing and injury' to full protection of the species and their places of refuge. Where pertinent, details of legal protection afforded to species/species-groups are provided below.

4.19 In addition to protected species, there are other species/species-groups that do not receive legal protection, but which are notable owing to their conservation status as Priority Species or other status as described in paragraphs 3.2 and 3.3. Details of any actual or potential notable species within the site are identified below.

[17] http://publications.naturalengland.org.uk/file/6449751093673984 - accessed 20/10/21

4.20 With respect to planning policy, protected and notable species are afforded policy protection at a national level by the NPPF (paragraph 180). At a local level, Policy CS13 states:

"We will expect development proposals to consider and take account of the impacts on biodiversity and geodiversity, particularly with regard to:

- *…*
- *…*
- *…*
- *…*
- *protected species, and*
- *ecological networks".*

4.21 Baseline investigations have identified protected species implications for the site relating to bats, breeding birds and potentially badgers and reptiles, which are discussed in turn below.

Breeding Birds

4.22 All birds are protected, under the Wildlife and Countryside Act 1981 (as amended), while they are nesting. In addition, some bird species have further protection under Schedule 1 of the Act, which protects them from disturbance whilst nesting, as well as from damage/destruction.

4.23 General abundance of birds throughout the site was low, with the majority of activity confined to field margins. The majority of common species were recorded along the western boundary with existing residential development. Of the species of conservation concern, most are likely or confirmed to be breeding within the site, with the exception of mallard, for which there is no suitable breeding habitat. The remainder were present in low densities and were therefore not considered to represent significant populations.

4.24 Any clearance of hedgerows with potential as bird nesting habitat should be undertaken outside of bird nesting season (between March and August inclusive for most British bird species),or should be immediately preceded by a check for any active bird nests by a suitably experienced ecologist. If any nests are found they will be protected with a suitable buffer until the young have fledged.

4.25 Any hedgerows that are to be lost will be compensated for, and enhanced, through new tree, hedge and shrub planting within the proposed development.

4.26 However, the impact of the loss of arable land on specialist ground-nesting species (namely, skylark and lapwing), cannot be realistically directly compensated for, the overall enhancement of the site for a wide range of bird species should result in no net loss of bird nesting and foraging opportunities generally. Furthermore, it is considered unlikely that lapwing have bred regularly within the site due to the cropping regime. Therefore, the presence of this breeding species during 2021 is considered to have been anomalous, and those individuals will return to their regular breeding territories or onto adjacent arable land.

4.27 A minimum of eight bird boxes of varying model types, on suitable mature trees (retained or planted) and buildings should be installed to provide additional bird nesting opportunities. Details of new planting and the locations and types of bird boxes should be included within an EMP secured by planning condition.

Bats

4.28 All British bat species, and their roosts, are fully protected under European and domestic legislation, through the Conservation of Species and Habitats Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended), respectively.

4.29 In terms of bat roosting, there are three trees within the site that have bat roost potential; two with high potential (T2 and T3) and one with low potential (T1). As shown on the Landscape Strategy provided at **Appendix EDP 1**, the two trees with high bat roost potential are to be retained within public open space areas (and T1 can be retained within the northern hedgerow). There is also greenspace proposed between the two trees, with additional foraging habitat proposed in the form of wildlife-friendly SuDS features, which connects with greenspace in the wider landscape to the north.

4.30 Subject to the protection of these trees during construction through their inclusion in the EPZs and buffering from development and implementation of a sensitive lighting scheme to avoid illumination above existing levels, potential impacts on roosting bats will be avoided. In the event that, through detailed masterplanning and/or landscape design, it later transpires that any of these trees require felling or pruning, these should be subject to further detailed survey (such as an aerial inspection) prior to any such works commencing. These measures can be secured through the ECMS.

4.31 In addition to the above it is recommended that artificial bat roost features (such as raised bat tiles) are incorporated into at least four of the new buildings on the periphery of the development, and that four Schwegler 1FF bat boxes are installed on suitable mature trees, in order to provide a net gain in roosting opportunities available to the local bat population. These measures can be secured through the EMP.

4.32 The bat transect survey results signify that the areas of highest bat activity (relatively speaking) are between trees T2 and T3, along the northern boundary and along central hedgerow/ditch H6. The main access road will pass to the west of T2, however, the habitat corridor leading eastward from T2 and connecting with suitable off-site habitats will remain uninterrupted. The main access road and a secondary road route are also

proposed to bisect hedgerow H6. The main access road will pass through an existing gap of c.20m wide. In order to maintain the bat flight line along this hedgerow it is recommended that the vegetation on either side of the roads should be allowed to grow tall and the lighting levels in the area be minimised through a sensitive lighting strategy.

4.33 The measures described above, together with proposed additional tree, hedge and scrub planting around the site, and the creation of wildlife-friendly SuDS features (including at least one that is permanently wet), will avoid impacts upon foraging bats and provide an overall, measurable net gain in habitat quality within the site following development.

4.34 Provided the above mitigation measures are implemented at the appropriate stages in the planning process, the proposed development would not contravene any legislation or planning policies relating to bats.

Badgers

4.35 Badgers, and their setts, are protected in the UK under the Protection of Badgers Act 1992.

4.36 No evidence of badgers was found on-site during the Extended Phase 1 survey, or any of the subsequent site visits for bats/birds. During the 2012/2014 survey work that covered the wider strategic site, an outlier sett was recorded c.50m south of the site. The hedgerows within the site are suitable for sett-building.

4.37 It is therefore recommended, as a precaution, that a pre-commencement update badger check should be carried out by a suitably experienced ecologist, to ensure that there has been no new colonisation by badgers within the construction area. Given that it is likely that badgers occasionally traverse the site it is also recommended that any excavations created during construction works that are deeper than a metre should either be covered over at night or should have a sloping side, to prevent any badgers or other nocturnal wildlife from becoming trapped.

4.38 New areas of wildflower grassland would enhance the foraging opportunities for badgers within the site.

4.39 Provided the above precautionary mitigation measures are adopted, the proposed development will not contravene any legislation or planning policies relating to badgers.

Reptiles

4.40 Reptiles are protected from killing/injury under the Wildlife and Countryside Act 1981 (as amended).

4.41 Although it is considered unlikely that reptiles are present within the site, there is limited potential that grass snake occasionally traverse the ditches on-site. Therefore, in order to avoid harming reptiles, any works to clear scrub/hedge/tall ruderal in field margins/along ditches/hedgerow bases should be completed outside of the hibernation season (i.e.

November to February inclusive) and should be undertaken using hand tools under the supervision of a suitably qualified ecologist. Large refugia, such as boulders, tree stumps, etc., will be lifted and checked underneath, before removing; then the vegetation will first be cut down to a height of 30cm; and, finally following a finger-tip search of the clearance area by the ecologist, the rest of the vegetation can be removed.

4.42 Creation of wildflower grassland areas and SuDS features, including at least one permanently wet waterbody, will enhance the on-site opportunities for reptiles, particularly grass snake.

4.43 Provided the recommended precautionary mitigation measures described above are implemented, as secured through the ECMS, the proposed development will not contravene any legislation or planning policies in relation to reptiles.

Other Mammals

4.44 All wild mammals are protected from unnecessary harm (for example through asphyxiation/being trapped in burrows) under the Wild Mammals (Protection) Act 1996. Some rabbit burrows were noted along the northern boundary of the site (hedgerow H2), therefore, care should be taken, if any construction works are required in this area, to carefully dismantle any burrows present in order to allow any mammals present to escape.

4.45 Hedgehogs are not legally protected, but they are a Priority Species, due to their declining numbers over recent years. Proposed new habitat creation, in the form of new hedge/shrub for shelter and grassland for foraging, during the detailed design stage should enhance opportunities for hedgehog. It is also recommended that the EMP includes details of an artificial hedgehog house to be incorporated in a suitable location i.e. within the public open space on the edge of the development.

Section 5
Conclusion

5.1 EDP's desk and field-based baseline investigations have demonstrated that the habitats and species present within and around the site do not pose an 'in principle' constraint to the proposed development that is the subject of this Ecological Appraisal. There are no statutorily protected nature conservation interests within the proposed development site and none nearby that would be materially affected by the proposals.

5.2 The habitats identified on-site predominantly comprise those of low (Site-level or less) intrinsic ecological importance, which presents an opportunity to enhance the biodiversity value of the site, as a result of the proposed development. However, EDP's surveys have identified some valuable habitat features and protected species that will need to be respected and embedded into any future Reserved Matters applications. Policy for the conservation and enhancement of the natural environment at all levels aims to "*minimis(e) impacts on and provid(e) net gains for biodiversity…"* (NPPF paragraph 174).

5.3 Accordingly, from the outset of the design process, EDP has contributed to the design of the masterplan assessed by this report which accompanies the planning application. Specific proposals for the avoidance, mitigation and compensation of any predicted impacts are considered in this report and outlined in **Section 4**. These measures include: those already embedded within the Landscape Strategy (i.e. retention and buffering of the majority of the hedgerows/ditches and the mature trees); measures which should be incorporated at the construction stage (i.e. pre-commencement check for badgers and sensitive clearance methodologies in relation to nesting birds and reptiles); those which should be designed and specified within the landscaping scheme and ECMS (i.e. new planting, creation of wildlife-friendly SuDS features and sensitive lighting scheme); and enhancement measures to ensure that biodiversity value and opportunities for a range of protected and notable species are increased as a result of the proposed development.

5.4 On this basis, EDP finds that by virtue of the relatively limited constraint posed by the site's habitats and protected species interest, coupled with the scope of the proposed mitigation measures, the scheme is capable of compliance with relevant planning policy for the conservation of the natural environment at all levels.

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Appendix EDP 1
Landscape Strategy
(edp4685_d032a 02 November 2021 MMm/TR)

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Site Boundary

Residential Area

Local Equipped Area of Play (400m² With 20m Buffer)

Existing Trees and Vegetation

Proposed Trees and Vegetation

Indicative Attenuation Basin

Road Route

Public Right of Way (Ref:J37/1) (PRoW)

Pedestrian Link

Views of St Mary's Church

Proposed Footpath Link

Mown Grass

Species Enriched Grassland

client
Taylor Wimpey (UK) Ltd

project title
Land North of Barkby Road, Syston

drawing title
Plan EDP L8: Landscape Strategy

date	**02 NOVEMBER 2021**	drawn by	**MMm**
drawing number	**edp4685_d032a**	checked	**TR**
scale	**1:1250 @ A2**	QA	**RB**

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Appendix EDP 2
Correspondence with the LPA Ecologist, Rupert Simms, February 2018

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the environmental dimension partnership

LANDSCAPE
ECOLOGY
HERITAGE
MASTERPLANNING
ARBORICULTURE
EXPERT WITNESS

19 February 2018 Our Ref: **L**/edp4685/CB/er

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Dear Rupert

Ecological Consultation re. Future Planning Application of Land North of Barkby Road, Syston – pre-application ref: P/18/0338/2

EDP has been commissioned by Taylor Wimpey East Midlands ('the Applicant') to progress ecological investigations to inform an Ecological Appraisal of Land North of Barkby Road, Syston ('Application Site').

The Applicant is promoting an area of approximately 8.3 hectares (ha) of land for residential development of up to 195 new homes. The Application Site is on the eastern edge of Syston (approximate central Ordnance Survey Grid Reference: SK 637 110). The land use within the Application Site is arable, and is bounded by hedgerows and ditches, with a watercourse traversing the centre from east-west. There is also a public footpath that traverses the Application Site. I accompany this letter with a copy of the emerging masterplan for your information.

The purpose of this consultation is to seek your agreement at this early stage on the scope of the detailed Phase 2 ecology survey work required to provide a sufficient baseline to inform the Ecological Appraisal. The appraisal will form part of a subsequent planning application to Charnwood Borough Council at the end of April. EDP carried out a suite of ecological surveys on a larger strategic site in 2012 and 2014, which included this Application Site within its boundaries. A more recent Extended Phase 1 Survey of the Application Site has been undertaken by EDP on 01 February 2018.

The following is a summary of the ecological baseline gathered through the investigations that have been undertaken to date for the Application Site.

Ecological Baseline

As mentioned, the Application Site predominantly comprises one very large arable field, which is considered to be of negligible intrinsic ecological value. A waterbody and hedgerow that traverse the field (east-west) are also present, and species-poor hedgerows with adjacent ditches form the boundaries.

The ditches that are present on the boundaries were mostly wet at the time of the survey (01 February 2018). However, it is considered likely that these are only seasonally wet ditches, given that they had standing water in them following a period of several bouts of recent heavy rainfall and did not support any aquatic vegetation. The waterbody that traverses the centre of the Application Site only had a water depth of *c.*2-3cm. However, due to an inflow pipe that feeds it from under the road to the east, it is considered likely to be wet, although very shallow, for more of the year than the boundary ditches. Although, the previous survey work of the wider site found all of the ditches onsite to be dry at the time of the 2012/2014 surveys, given that they are all illustrated on the Phase 1 plan as 'dry ditch'.

All of the hedgerows present were species-poor hawthorn-dominated hedges that are heavily managed, flailed to no greater than 2m high. The hedgerows are, therefore, considered to be of low (site-level) intrinsic ecological value. There are two mature trees present on-site that have bat roost potential, one is a very large mature oak tree in the middle of the Application Site, and in the middle of the public footpath that crosses the Application Site, and one is an ash tree that is on the north-eastern boundary.

Given that the Application Site is predominantly one large arable field with species-poor hedgerows of low (site-level) intrinsic ecological value (or less), the Application Site affords limited opportunities for protected/priority species. EDP therefore considers that it is unlikely to support important populations/assemblages of protected or priority species, and that a focused suite of Phase 2 surveys is appropriate for this relatively small site.

Recommended Further Surveys/Considerations

Great crested newts

Although there are wet ditches present within the Application Site, as discussed above, it is considered unlikely that these features support breeding great crested newts; they are only seasonally wet. Using freely available online mapping, two ponds were identified within 500m of the Application Site boundary. However, both were more than 250m away; one is 380m to the south-west, with Barkby Road and new development in-between, and the other is 465m to the north-east, with Queniborough Road, Ridgemere Lane and agricultural land in-between. The pond to the north-east was dry during the 2012 breeding season and the pond to the south-west was subject to great crested newt surveys. No great crested newts were found. The species is, therefore, considered to be absent from the Application Site and it would be unnecessary to carry out great crested newt surveys to inform this Ecological Appraisal.

Water Voles/Otters

Although there are waterbodies onsite in the form of ditches, one of which comprises running water (albeit very shallow), it is considered highly unlikely that otters or water voles would use the ditches within the Application Site. The ditches within the Application Site are connected to other similar ditches across the Queniborouh Road that are also sub-optimal. The Barkby Brook, which does provide suitable water vole/otter habitat, is located approximately 480m south and 490m south-west of the Application Site. However, new development, agricultural land and the Barkby Road all occur between the brook and the Application Site.

Therefore, due to the low suitability of the onsite habitats for these species and the isolation from nearby suitable habitat in the wider landscape, it is considered highly unlikely that these species would be present onsite and, therefore, EDP considers it is unnecessary to carry out further surveys for these species.

Bats

The two trees that were identified as having bat roost potential would need to be subject to aerial inspection surveys if they are to be impacted by the development. As illustrated on the emerging illustrative masterplan, the two trees are to be retained within the development and the lighting scheme will be recommended to be sensitively designed in this area.

EDP acknowledges that some level of bat activity survey work should be undertaken at the Application Site. However, due to the low quality of the habitats onsite, coupled with the retention of the majority of the habitats that do have any intrinsic ecological value, it is considered proportionate and appropriate to undertake limited survey effort, comprising a manual transect survey and deployment of two static automated detectors in mid-April ahead of the planning submission. We would then propose to carry out a further manual transect and static detector deployment in mid-May and early June, and follow the application with an Addendum report (containing final bat activity results) during the determination period of the application. Although this will not have been a full survey season of bat activity sampling, given the reasons set out above, it is considered that this would constitute sufficient survey effort to enable a robust assessment of the importance of the onsite habitats for bats within this Application Site.

Reptiles

The field margins are very narrow and short, so there is no suitable reptile habitat present within the Application Site. There is, however, good quality reptile habitat present immediately to the north of the north-eastern part of the site boundary. The Ecological Appraisal will recommend necessary mitigation measures (timings/methods) to avoid/minimise possible harm to individual reptiles that may occur temporarily onsite during construction, though the risk is considered to be low in the absence of mitigation.

Badgers

The surveys in 2012/2014 identified evidence of outlier badger setts within the wider site to the south of Barkby Road. There was no evidence of badgers within the Application Site, but there were several rabbit holes within the base of the northern boundary hedgerow. A check for any new badger setts will be carried out when the Application Site is visited for the bat activity surveys, and a pre-commencement check will be recommended within the Ecological Appraisal.

Masterplan Design Inputs

The emerging masterplan (which accompanies this letter) has been designed to retain the majority of the habitats with intrinsic ecological value, as follows:

- The majority of the hedgerows will be retained, aside from a new site access off Barkby Road that would bisect the southern hedgerow;
- The central hedgerow already has a gap in it where the access road is indicated to bisect it, and there is already a crossing over the ditch in this location;
- There is a green corridor proposed along the public footpath to retain habitat connectivity across the Application Site; and
- There will be extensive new tree planting across the Application Site to help deliver a net gain in biodiversity value.

Conclusion

The further Phase 2 survey work proposed above is considered by EDP to be sufficient to provide a robust baseline upon which an assessment of the ecological impacts of the development proposals can be made. However, we would welcome your comments on our approach at this early stage.

The information gathered during the surveys to date have been/are being used to inform the masterplanning process. The current aspiration of the Applicant is to submit the planning application in late April 2018.

Please do not hesitate to contact me should you have any comments or queries on the above. Thank you in advance for your assistance on this matter.

Kind regards

Charlotte Bell *BSc MCIEEM*
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Encl: Masterplan

Barkby /Queniborough Road Syston 18-0338 (advice)

Ecology comments 14th March 2018

The following comments address points made in a recent letter from the applicant's ecologist EDP (ref L/edp4685/CB/er)

It is clear that EDP has conducted a preliminary assessment of the site and it is expected that an application would be supported by a full ecological appraisal. The purpose of the letter is to present an initial response to the concept masterplan (P17-2941_001) and to seek agreement on the scope of additional (phase 2) survey work although a final and fully informed decision about phase 2 works can only be made following the submission of the preliminary ecological assessment and a more detailed layout for the scheme.

The outline description of the site as comprising arable fields with hedgerows and ditches appears to be accurate and the concept masterplan seeks to retain the majority of hedgerows. The site has an urban edge along its western boundary and with the exception of a SuDS feature to the west the nearest ponds are either over 400m away from the site and/or separated from it by a road and residential development. There appear to be no buildings on site.

In part the approach to phase 2 works will be determined by the extent to which the development proposal is capable of delivering appropriate biodiversity net gain. For example where it is considered that there is a low risk of harm to protected and notable species any requirement for additional surveys could be avoided where it can be demonstrated that a precautionary approach has been taken to a) construction methods and b) providing compensatory habitat designed to provide long term conservation benefits.

The assessment of the site presented in the EDP letter as being of "negligible intrinsic value" is of concern. The use of the word "intrinsic" is presumed to be a proxy for botanic biodiversity but is unhelpful. Habitats are by definition characterised by the species which depend upon them. As EDP will be aware arable habitats are capable of supporting a range of farmland birds including several notable species. Whilst the hedgerows may quite properly be considered to be the most valuable components of the site; seed and insect feeding birds which nest in the hedgerows will also to an extent rely on the adjacent arable habitats and will be displaced by the disturbance resulting from residential development. Arable fields and their margins are also capable of supporting notable mammal species such as brown hare and harvest mouse, as well as protected species such as badger. The use of the term "negligible" is therefore inappropriate.

Whilst it is accepted that the site could not reasonably be considered to have a high value, the long term potential biodiversity value of the site as arable land is considerably higher than it would be were the site to be developed. In the absence of mitigation losses to development include: the loss of extant biodiversity from the site, the loss of potential for the site to become more valuable for biodiversity and the loss of productive agricultural land. The preliminary ecological appraisal must

demonstrate how the detailed development proposals area capable of mitigating the loss of 8.3ha of arable land and how the existing features of value have informed the layout. Where it is considered impossible to achieve an appropriate level of mitigation on site (IE: no net loss of biodiversity as a minimum) then as a last resort a contribution towards offsite habitat creation and improvement might be acceptable.

Notwithstanding the fact that an ecological appraisal has not so far been submitted to CBC it would appear that the concept masterplan has responded to ecologically important features of the site. This is welcomed, though further detail would inevitably be sought as part of the application process:

- The hedgerows have been retained and buffered, however it is not clear what the width of the buffers is and it would seem likely from that layout that some hedgerows around the margins would form the rear boundaries of private gardens. Ideally this should be avoided, although including hedgerows within garden boundaries could be acceptable where there is clear evidence of compensatory habitat elsewhere within the scheme.
- It is not clear what the blue asterisks on the concept masterplan represent, though it has been assumed that these are proposed SuDS locations. Given the presence of a large SuDS feature immediately to the west this is a good location from an ecological perspective. What is unclear at this stage is the potential to achieve a design which is genuinely capable of providing benefits for biodiversity. There are alternatives to avoiding net biodiversity loss but biodiverse SuDs introduce multi-functionality to land use and so could be argued to be more sustainable. Achieving this goal almost certainly requires consultation between ecologists and drainage engineers at the design stage. Should the ecological appraisal recommend biodiverse SuDS I would expect to see relevant features detailed within the drainage strategy. There may be opportunities to enhance the existing on site ditches as part of the SuDS proposal.
- The layout appears to provide areas of open space that are continuous across the site and maintain connectivity between open countryside and open space amongst the housing to the west. This is welcomed.
- The public footpath is retained in what appears to be a wide green corridor. This is also welcomed. Although this will not result in an improvement in the biodiversity value of the developed site *per se* it will help to create a pleasant environment for residents and promote engagement with wildlife. This is also welcomed.

In assessing the extent to which the proposed scheme avoids biodiversity loss and/or provides biodiversity benefits CBC will be mindful of the former land use of the site and the way this might constrain the ability to provide “high value” habitats such as species rich grassland on site. The extent to which any newly created habitats will inevitably be subject to disturbance will also constrain their ultimate biodiversity value. Where gardens and other features within the built environment are proposed to deliver biodiversity benefits these will be assumed to have “low value” unless clear evidence to justify an alternative interpretation is presented.

Phase 2 survey works

GCN: The Preliminary assessment presented by EDP appears to be reasonable, although not to be supported by a recent field survey. Accordingly presence absence surveys for GCN will not be required if this position is supported by:

- up to date field information (including HSI) for the two ponds identified plus the SuDS feature to the west of the site
- a desk top study confirming that there are no recent records of GCN within 500m of the site
- A proposal to implement RAMS if appropriate

Water voles/ otters: Additional survey work is not required

Bats: The two trees with bat roost potential should be subject to an aerial inspection. Whether or not these trees are retained it is almost inevitable that they will be impacted by the development. EDP have already acknowledged the importance of a considerate lighting scheme to bats, however the presence of a significant roost in either of the two trees mentioned would necessitate a review of both the buffer surrounding those trees and the protection of flight lines to and from them.

The proposal to undertake a level of survey effort below that recommended by national guidelines is understood to be expedient to the applicant but is also based on an understanding of the on-site and surrounding habitat types. The available information suggests that such an approach would be acceptable but should be justified clearly by a desk top study and an assessment of the on-site trees mentioned above. Where there is uncertainty the survey effort could be improved by extending the period for which the static detector is deployed or deploying more than one team per transect during activity surveys. Given the time of year it ought to be possible to present the results of the desktop study and aerial tree inspections prior to submission of the ecological appraisal. Preliminary discussion of the spring transect results would be welcomed prior to submission.

Given the character of the site and its surroundings it is reasonable to conclude that uncertainty about the impact of development on bats resulting from a reduced survey effort could be resolved by convincing evidence that the proposal will benefit bats.

Reptiles: Based on the available evidence the assessment of the site for reptiles is not accepted. The hedgerow margins may or may not be narrow but some hedgerows include wet ditches. The SuDS feature to the west appears to contain suitable habitat for reptiles. EDP have also identified suitable habitat immediately to the north of the site. It is therefore reasonable to expect that at least grass snake would be occasionally present within the site. The use of RAMS however is considered an appropriate response and full reptile surveys will not be required. The final design of the scheme should take into account the potential for reptiles to be present, based on a full consideration of suitable habitat features within and surrounding the site and of local records.

Badgers: It should be possible to establish whether or not badgers are present within the site as part of the phase 1 habitat survey and no specific badger surveys will be required. However it is recommended that consultation data is considered before the phase 1 survey is conducted.

Birds: The nature of the site and its surrounds indicates some potential for notable bird species to be present during both winter and the breeding season. Notwithstanding the need to consult local records further winter or nesting bird surveys are probably unnecessary. It is considered likely that species including skylark, yellowhammer and whitethroat are likely to be present within the site and would be displaced by development. However, the only way of avoiding this loss would be to avoid development altogether. Hence compensation for loss of habitat for farmland birds should be considered as part of the overall proposal for the avoidance of net biodiversity loss.

Appendix EDP 3
Illustrative Site Photographs (01 February 2018) and Habitat Descriptions

A3.1 The principal habitats within the site are described below and should be read in conjunction with **Plan EDP 1**.

Arable

A3.2 The majority of the site comprises two arable fields, planted with wheat (**Image EDP A3.1**).

A3.3 The majority of field margins are very narrow, of a short sward at the time of the survey and species characteristic of waysides including white dead-nettle (*Lamium albium*), hogweed (*Heracleum sphondylium*), nettle (*Urtica dioica*) and cleavers (*Galium aparine*) were present. Due to their limited extent and species interest, the field margins are not considered to constitute notable habitat.

A3.4 Some margins are wider, particularly where the public right of way intersects the site. Here, the sward includes nettle, perennial rye (*Lolium perenne*), soft brome (*Bromus hordeaceus*), dandelion (*Taraxacum officinale* agg.), false-oat grass (*Arrhenatherum elatius*), creeping buttercup (*Ranunculus repens*), broad-leaved dock (*Rumex obtusifolius*), white clover (*Trifolium repens*), cut-leaved cranesbill (*Geranium dissectum*), cock's-foot (*Dactylis glomerata*), wood avens (*Geum urbanum*), garlic mustard (*Alliaria petiolata*), groundsel (*Senecio vulgaris*), lesser burdock (*Arctium minus*), ragwort (*Senecio jacobaea*), common vetch (*Vicia sativa*) and comfrey (*Symphytum officinal*).

Image EDP A3.1: Ploughed arable field – covering the majority of the site.

A3.5 The arable land is of very low intrinsic ecological importance but offers opportunities (albeit limited) for protected/notable species, namely ground-nesting bird species.

Hedgerows

A3.6 All of the hedgerows within the site are species-poor in composition and the majority are intensively managed – flailed to a height of c.1.5m high x 1m wide (**Image EDP A3.2**).

A3.7 The majority of the hedgerows are dominated by hawthorn (*Crataegus monogyna*), with a few specimens of blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), elm (*Ulmus procera*), ash (*Fraxinus excelsior*), dog rose (*Rosa canina*) and field maple (*Acer campestre*) interspersed in some of them. The ground flora diversity is limited to common wayside species, as described above.

Image EDP A3.2: Example of a species-poor hedgerow, H1.

A3.8 **Table EDP A3.1** provides a detailed summary of all the hedgerows within the site, and their locations are shown and numbered on **Plan EDP 1**.

Table EDP A3.1 Summary of the hedgerows within the Site

Hedgerow No. (Plan EDP 1)	Hedgerow Species Present	Ground Flora Species	Comments
H1	Hawthorn, elm, bramble.	Nettle, cow parsley (*Anthriscus sylvestris*), hogweed, white dead-nettle.	Part-defunct.
H2	Hawthorn, dog rose, elm.	Nettle, cleavers, Lords-and-ladies (*Arum maculatum*), hogweed, cow parsley.	One standing stump tree within this hedgerow.

Hedgerow No. (Plan EDP 1)	Hedgerow Species Present	Ground Flora Species	Comments
H3	Hawthorn, blackthorn, ash, elm, elder.	Cleavers (*Galium aparine*), ground ivy (*Glechoma hederacea*), cut-leaved cranesbill (*Geranium disssectum*), cow parsley.	Hedge on a bank so the west side is higher than the east side.
H4	Hawthorn, blackthorn, elder, ash, goat willow, dog rose.	Nettle, cleavers, garlic mustard (*Alliaria petiolata*).	Defunct, and less intensively managed at eastern end. Western end has an adjacent ditch that was wet at the time of the survey. Two ash trees present.
H5	Hawthorn, blackthorn, elder, ash.	Cow parsley, nettle, cleavers, lady's bedstraw (*Gallium verum*).	Dry ditch at southern end.
H6	Blackthorn, ash, elm, elder, bramble, dog rose.	Nettle, cleavers, bramble.	Running ditch adjacent to the southern side of the hedgerow. Culverted under Queniborough Road to the east.
H7	Hawthorn, blackthorn, dog rose, bramble, ash.	Nettle, cleavers, hogweed.	Wet ditch on southern side of hedgerow.
H8	Beech, bramble, dog rose.	Cleavers, hogweed, cow parsley, garlic mustard.	Line of young, planted trees.

A3.9 The hedgerows are considered to be of Site-level ecological importance in their own right, forming a network of linear habitat connecting to the wider landscape to the north. Furthermore, these habitats have the potential to support protected and notable species including nesting birds, badgers and foraging/commuting bats.

Mature Trees

A3.10 There are over-mature ash trees within hedgerow H2 and H4 and a very large mature oak tree in the centre of the northern arable field (**Image EDP A3.3**). These trees are considered to provide Local-level intrinsic ecological importance, as well as providing opportunities for protected/notable species, namely nesting birds and roosting bats.

Image EDP A3.3: Mature oak (T2, **Plan EDP 1**), with Local-level intrinsic ecological importance, and the potential to support roosting bats and nesting birds.

A3.11 Details regarding the potential of the trees present on-site to support roosting bats are provided in **Appendix EDP 5**. Further tree information, including those protected by Tree Preservation Orders (TPOs), is provided within the Arboricultural Assessment (report reference: edp4585_r003).

Ditches

A3.12 There are wet ditches adjacent to hedgerow H4, H6 and H7, and a dry ditch adjacent to H5. The ditch on the southern side of H6 is very shallow, c.2cm deep, but has a flow that runs under a culvert under the Queniborough Road to the east of the site. (**Image EDP A3.4**).

Image EDP A3.4: Running water ditch adjacent to hedgerow H6.

A3.13 The other wet ditches were full of stagnant water, as a result of recent high volumes of rain prior to the survey.

A3.14 Whilst the ditches provide a connective function across the landscape, there was no aquatic vegetation present in any of the ditches, which, coupled with the seasonal/occasional nature of the inundation of most of the ditches, reduces their intrinsic ecological value to be of no greater than Site-level importance.

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Appendix EDP 4
Breeding Bird Survey

Methodology

A4.1 The Extended Phase 1 survey identified the presence of arable fields, boundary hedgerows, ditches and a few scattered trees within the site with potential to support protected or notable species of breeding bird, principally declining farmland species. However, owing to the predominance of arable land and the limited extent of other habitats within the site, the potential to support a valuable assemblage or any scarce/protected species was considered to be relatively low. A pilot breeding bird survey was therefore undertaken at the start of the breeding season to provide an indication of the species present and determine whether the full suite of breeding bird surveys would be necessary.

A4.2 The pilot breeding bird survey was undertaken on 25 April 2018 and an update survey on 26 May 2021 by an experienced ornithologist, with reference to the Common Bird Census 'territory mapping' methodology[18]. This entailed the surveyor walking to within 50m of all parts of the site and recording all bird species present and their activity status, with a particular emphasis placed upon those elements considered to relate to, or be indicative of, breeding. This ensured that the survey identified all birds using the margins of the site, as well as those in the interior.

A4.3 The survey was timed to start shortly after first light (start time 05:45 and 04:50 respectively), to coincide with the period of peak activity for birds, particularly passerine songbird species, and continued until 06:45 and 06:00 respectively. The surveys were undertaken during suitable weather conditions with a light breeze, no rain and clear visibility. The pilot breeding bird survey and subsequent update are therefore not considered to have been limited by any seasonal or climatic factors.

A4.4 An assessment of the individual bird species recorded at the site, as well as the overall assemblage, was subsequently made with reference to the national conservation status of the different breeding species recorded there, with data taken from the Birds of Conservation Concern[19]. Appropriate consideration was also given to the conservation status of each bird species at the local level, with reference to the Leicestershire and Rutland Annual Bird Report (2015)[20].

18 British Trust for Ornithology. *Common Bird Census.* www.bto.org.
19 Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R..D., Lock, L.., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R..D. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, Vol. 108, 708-746.
20 Baker, R., Graham, J., Croxtall, B., Davis, R., Lister, S. and Stevington M. (2017) The Leicestershire and Rutland Ornithological Society. *The Leicestershire & Rutland Annual Bird Report 2015*

Results

A4.5 The desk study returned a number of protected and notable bird species records from within 2km of the site. Several of these records relate to Red and Amber list species, however, many of these are wetland, woodland or other specialist species unlikely to be found within open farmland or records of passage migrants, vagrants or winter migrants. Those records that are considered to be potentially pertinent to the site owing to the arable land, hedgerows and ditches include yellow wagtail, spotted flycatcher, skylark, reed bunting, yellowhammer, cuckoo, kestrel, house and tree sparrow, hobby, dunnock, turtle dove, linnet, lapwing, bullfinch, song thrush, starling, stock dove and barn owl.

A4.6 The pilot breeding bird survey and update survey recorded 25 species of bird within the site including 4 on the Red list and 2 on the Amber list for conservation concern as summarised in **Table EDP A4.1**. **Plans EDP 4** and **5** show registrations made during the survey only, these do not relate to inferred territories.

Table EDP A4.1:Protected/Notable Bird Species Recorded During the Survey within the Site

Species	Conservation Status[21]	On-Site Status (2018)	On-Site status (2021)
Mallard (*Anas platyrhynchos*)	Amber List	A single individual was flushed from the middle of the site, no breeding habitat exists for this species.	Not recorded.
Lapwing (*Vanellus vanellus*)	Red List/NERC act S.41	Not recorded.	Three adults were recorded, along with a single juvenile, indicating confirmed breeding within the site.
Skylark (*Alauda arvensis*)	Red List/NERC act S.41	Two singing males were heard over the site, over the northern and southernmost fields. They are likely to be breeding.	Single individual recorded singing over land to the south of the site.
Dunnock (*Prunella modularis*)	Amber List/ NERC act S.41	A single singing male was recorded in the north of the site. Ample suitable habitat exists around the boundaries.	A single male was recorded singing on the western boundary.
House sparrow (*Passer domesticus*)	Red List/NERC act S.41	Not recorded.	A small group was recorded along the western boundary, associated with the residential development there.

21 Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R..D., Lock, L.., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R..D. (2015). *Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man*. British Birds, Vol. 108, 708-746.

Species	Conservation Status[21]	On-Site Status (2018)	On-Site status (2021)
Linnet (*Linaria cannabina*)	Red List/NERC act S.41	A pair were recorded along the southern hedgerow within suitable habitat.	Not recorded.
Yellowhammer (*Emberiza citrinella*)	Red List/NERC act S.41	Two singing males were recorded within hedgerows and a single female carrying food into a nest site (indicating confirmed breeding).	Males were recorded within hedgerows on the southern and northern boundaries of the site.

A4.7 Included within **Table EDP A4.2** are those species recorded during the pilot survey, which are not considered to be of conservation concern.

Table EDP A4.2: Other Bird Species Recorded within the Site

Species
Red-legged partridge (*Alectoris rufa*)
Grey heron (*Ardea cinerea*)
Buzzard (*Buteo buteo*)
Woodpigeon (*Columba palumbus*)
Carrion crow (*Corvus corone*)
Jackdaw (*Corvus monedula*)
Magpie (*Pica pica*)
Blue tit (*Cyanistes caeruleus*)
Great tit (*Parus major*)
Swallow (*Hirundo rustica*)
Whitethroat (*Sylvia communis*)
Wren (*Troglodytes troglodytes*)
Blackbird (*Turdus merula*)
Robin (*Erithacus rubecula*)
Long-tailed tit (*Aegithalos caudatus*)
Pied wagtail (*Motacilla alba*)
Chaffinch (*Fringilla coelebs*)
Goldfinch (*Carduelis carduelis*)

A4.8 General abundance of birds throughout the site was low, with the majority of activity concentrated to field margins. The majority of common species were recorded along the western boundary with existing residential development. Of the species of conservation concern, most are likely or confirmed to be breeding within the site, with the exception of mallard, for which there is no suitable breeding habitat. The remainder were present in low densities and were therefore not considered to represent significant populations.

A4.9 Although generally a single survey is not enough to establish whether a species is breeding on a site or not, due to the size of the site and the lack of diversity of habitats, the pilot survey and update were considered to be sufficient to value the bird assemblage effectively. Therefore, no further breeding bird surveys were considered to be necessary.

A4.10 In light of the results above, the bird assemblage is considered to be of Local level value only.

Appendix EDP 5
Bat Survey

Methodology

Bat Roost Surveys

Visual Assessment – Trees

A5.1 A visual assessment of all suitable trees on-site was undertaken by a Natural England bat licensed ecologist on 01 February 2018 and updated on 26 May 2021. The trees were surveyed for the presence of, or potential to support bats, with reference to best practice guidelines[22].

A5.2 The trees were searched as thoroughly as possible from ground level (using binoculars where necessary, and a high-powered torch), with all elevations covered where accessibility allowed.

A5.3 Suitable features for roosting bats include:

- Loss/peeling/fissured bark;
- Natural holes e.g. rot holes and holes from fallen limbs;
- Woodpecker holes;
- Cracks/splits or hollow tree trunks/limbs; and
- Thick-stemmed ivy.

A5.4 Signs of roosting bats include:

- Bat/s roosting *in-situ*;
- Bat droppings within or beneath a feature (hole or split);
- Staining around or beneath a feature;
- Oily marks (staining) around roost access points;
- Audible squeaking from the roost;

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

- Large/regularly used roosts or regularly used sites may produce an odour; and
- Flies around the roost, attracted by the smell of guano.

A5.5 Based upon the results of the visual assessment and features/evidence identified as above, the following ratings for trees were used during the assessment:

- Known or confirmed roost – where evidence of bats found;
- High potential – Multiple highly suitable features capable of supporting larger roosts;
- Medium potential – Definite bat roosting potential with fewer suitable features than high potential;
- Low potential – The tree supports features which have limited potential for roosting bats; and
- Negligible potential – No potential features to support roosting bats.

A5.6 The trees that were assessed as having bat roost potential are T1-3 on **Plan EDP 1**.

Limitations

A5.7 Visual assessments for roosting bats can be undertaken at any time of year. As such, these investigations were not limited by seasonal or climatic factors.

A5.8 Bats are mobile animals and will move between a series of different roost sites, frequently establishing and occupying new roost sites depending on seasonal requirements and resources available locally. This survey, therefore, only provides a snapshot of the conditions present at the site at the time of surveys.

Bat Activity Surveys

Manual Transect Surveys

A5.9 Manual transect surveys were undertaken across the site in April, May and June 2018, and June and September 2021 to identify key areas of bat foraging activity and commuting routes used by bats. In accordance with best practice guidelines, surveys were spread over the course of the active bat season and therefore were completed within the optimal survey months.

A5.10 Full details including the date, timing and weather conditions during each of the transect surveys undertaken during 2018 and 2021 is given in **Table EDP A5.1**. The weather conditions on each visit were suitable for bat surveys, being relatively warm with light to medium winds and minimal rain. The surveys are therefore not considered to be seasonally or climatically constrained.

Table EDP A5.1: Date, Timing and Weather Conditions of Bat Activity Transect Surveys.

Survey Date	Survey Type	Survey Time	Sunset/-Sunrise Time	Weather Conditions			
				Temp (°C)	Cloud (%)	Rain	Wind (Beaufort Scale)
24/04/18	Dawn	03:46–05:46	05:46	9	5–100	Nil	1–4
15/05/18 16/05/18	Dusk Dawn	03:06–05:06 20:55–22:55	05:06 20:55	15–18 12–13	50–60 60–80	Nil Nil	1–2 2–3
06/06/18	Dusk	21:23–23:23	21:23	16–14	100	Nil	2–1
25/05/21	Dusk	21:10–23:10	21:10	10–12	70	Nil	1
07/09/21	Dusk	19:38–21:38	19:38	23–26	10	Nil	1

A5.11 Manual transect surveys were completed by experienced bat surveyors across one transect survey route; one surveyor started at the start of the transect route and the other started half way round, with both surveyors walking in the same direction. The transect route was designed to cover all potential foraging or commuting habitat within the site, particularly trees, hedgerows and ditches, as illustrated on **Plan EDP 6**. The transect route was walked at a slow and steady pace. All bats were recorded and their behaviour marked on survey maps in order to characterise the value of the site and its component habitats to foraging and commuting bats.

A5.12 Activity surveys were conducted using Elekon Batlogger bat detectors which record the GPS location of each recording. Observations of the time, location, and activity of all bats seen or heard were noted. Bats were identified on the basis of their characteristic echolocation calls, which were recorded and analysed using computer sonogram analysis (Bat Explorer) to confirm species identification. Species of myotid bat (*Myotis* sp.) and long-eared bat (*Plecotus* sp.) are difficult to tell apart solely from their echolocation calls and are therefore grouped as such. The transect survey results are shown on **Plans EDP 7-10**.

Limitations

A5.13 The identification of calls and species using call analysis software is dependent upon the quality of the recording made which can be influenced by the following factors, which may limit levels of activity and species recorded:

- Weather conditions – rainfall and wind;
- Distance of bat from detector/surveyor;
- Presence of obstructions through which the noise must pass i.e. trees; and

- Proximity of other noise sources such as roads.

Automated Detector Activity Surveys

A5.14 To supplement the manual bat transect survey data, bat activity within the site was also sampled using static bat detectors, which automatically trigger and record bat echolocation calls. Anabat Express detectors (hereafter referred to as 'Anabats') were deployed in two locations per sampling occasion as shown on **Plan EDP 6**.

A5.15 Anabats were deployed for five nights during April, May and June 2018. The Anabats were fixed in secure locations, with an external microphone attached 1–1.5m above ground, and directed away from the tree/branch to maximise detection sensitivity. Minimum night time air temperatures were taken from a nearby weather station. **Table EDP A5.2** gives the sampling dates and details for the Anabats deployed during the three sampling periods.

Table EDP A5.2: Anabat Sampling Dates and Microphone Details

Sampling Period	Anabat Location	Microphone		Min Night Temp (ºC)
		Height (m)	Direction	
24–29 April 2018	1	1	West	4
	2	1	North	
11–16 May 2018	1	1	West	4
	2	1	North	
01–06 June 2018	1	1	West	10
	2	1	North	
26–31 May 2021	2	1	North	6
	3	1	North	6
07–12 September 2021	2	1	North	14
	3	1	North	14

A5.16 The sound files recorded by the Anabats were filtered for each of the UK's bat species/species groups using Analook software's filter function. The parameters for the species filters are based on those proposed by Chris Corben and Kim Livengood[23] and have been fine-tuned using known call parameters for each of the species. All files passing the various filters were checked manually using sonogram analysis in accordance with published guides[24] to confirm the species identification of each bat call.

[23] Taken from Analook W training course and workshop, September 2013
[24] Russ (2012). *British Bat Calls, a guide to species identification*. Pelagic Publishing, Exeter

Limitations

A5.17 The identification of calls and species using Analook software is dependent upon the quality of the recording made, which can be influenced by the factors already mentioned.

A5.18 It is difficult to accurately identify *Myotis* sp. and long eared to species level, therefore these species have been grouped into their respective genus.

Results

Bat Roost Surveys

Visual Assessment - Trees

A5.19 No bats or evidence of bats were found during the ground level visual assessment of the trees within the site. However, there were three trees that were identified as having bat roost potential; two had high potential (T2 and T3) and one had moderate potential (T1). The tree locations are illustrated on **Plan EDP 1** and summarised in **Table EDP A5.3**.

Table EDP A5.3: Results of Tree Assessment for Roosting Bats

Tree Number (Plan EDP 3)	Species	Potential Roosting Features identified	Bat Roost Potential
T1	Likely Oak (*Quercus* sp.) – although standing stump, so difficult to ascertain	Heavily ivy clad standing stump, but hollow and likely to be open at the top, exposing the main cavity to rain, thereby reducing its potential.	Low
T2	Oak	Large mature tree with a hollow in the trunk on the southern aspect. Multiple limb splits and limb holes, with flaking bark.	High
T3	Ash	Partly-dead tree with some limbs still living. Multiple cavities leading into a hollow trunk. Trunk snapped and evidence of ash dieback.	High

Bat Activity Surveys

Manual Transect Surveys

A5.20 The detailed results of the manual transect surveys are provided below, and the distribution of bat activity around the site recorded during each survey is illustrated on **Plans EDP 7**–**11**. Where no bat activity was recorded, no plan has been produced.

A5.21 No bat activity was recorded during the first activity survey, in April.

Manual Transects

A5.22 The April 2018 transect survey was undertaken at dawn, rather than dusk, in order to avoid unsuitable weather conditions that occurred at dusk on the scheduled date, but the conditions at dawn were suitable, with no rain, a light-moderate breeze and 9°C. Although April is the earliest month in the bat activity survey season, so activity levels are generally often low in this month, and the Midlands are known for its paucity of bats, some level of bat activity would be expected around some habitat features on-site. However, no bats at all were recorded by either surveyor during the April transect.

A5.23 The dusk and dawn transect survey undertaken in May 2018 recorded moderate levels of commuting and foraging bat activity, principally comprising commuting along the hedgerows, particularly along H6 across the middle of the site, and foraging behaviour around the large oak tree (T2). The activity recorded was largely of common pipistrelle bats, with occasional noctule and *Myotis* sp. bats, and one call from a rarer Nathusius' pipistrelle.

A5.24 The dusk transect survey in June 2018 recorded moderate levels of commuting and foraging bat activity, comprised of four bat species, namely common pipistrelle, soprano pipistrelle, noctule and *Myotis* sp. The majority of activity recorded was of common pipistrelles. There was less activity recorded along the central hedgerow (H6) during this survey, with the highest levels of activity focussed along the northern hedgerow and around the large oak tree in the middle of the northern field.

A5.25 Surveys in June and September 2021 recorded low-moderate levels of activity across the site and with a similar distribution, although species were limited to soprano and common pipistrelle and noctule. Activity was focussed along hedgerows, particularly in the south of the site.

Static Automated Detectors

2018

A5.26 Very few bat echolocations were recorded on the static detectors that were deployed on-site in April 2018 – only eight calls in total were recorded by both detectors over five nights. However, three species were identified from those eight calls, which were: common pipistrelle, noctule and *Myotis* sp.

A5.27 As with the manual transects, a much higher level of bat activity (albeit still moderate) was recorded on the detectors that were deployed in May, compared to April (which is expected) – 411 calls in total. The highest levels of activity were recorded at static detector location 2 (**Plan EDP 6**) on hedgerow H6, which bisects the site (252 recordings during the May recording period). Lower levels were detected at the other location, between T2 and T3 (159 recordings during the May recording period). These results suggest that hedgerow H6 is used as a navigational aid across the site.

A5.28 The static detectors that were deployed in June 2018 recorded bat activity of six species, namely common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, *Myotis* sp. and Leisler's bat. Contrary to the May static detector results, the static detector deployed in location 1 (between trees T2 and T3 on the northern boundary) in June recorded more than twice as many bat calls than the one deployed in location 2.

2021

A5.29 Bat activity was similar in May 2021 as in 2018, with both detectors recording a total of 279 calls from 5 species (common pipistrelle, soprano pipistrelle, *Myotis* sp., noctule and serotine).

A5.30 Activity during the September survey was slightly higher, with a total of 802 calls being recorded, the vast majority of which being common or soprano pipistrelle. Other species recorded included Leisler's bat, brown long-eared bat, noctule and a *Myotis* sp. Activity was fairly evenly split between detector locations during both survey periods.

A5.31 A summary of the bat calls recorded during all the manual transect surveys is provided in **Table EDP A5.4**.

Table EDP A5.4 Summary of the Echolocation Calls Recorded During Each Transect Survey

Date	Species					Total
	C.pip	S.pip	N.pip	Myotis	Noctule	
24/04/18	0	0	0	0	0	0
	-	-	-	-	-	
15/05/18 – 16/05/18	203	11	1	1	1	217
	94%	5%	<1%	<1%	<1%	
06/06/18	205	12	0	1	21	239
	86%	5%	0%	<1%	9%	
26/05/21	19	1	0	0	1	21
	90%	5%	0%	0%	5%	
07/09/21	23	6	0	0	3	32
	72%	19%	0%	0%	9%	
All Transects	**450**	**30**	**1**	**2**	**26**	**509**
	88%	**6%**	<1%	<1%	**5%**	

Automated Detector Activity Surveys

A5.32 The locations of the automated bat detectors (Anabats) are shown on **Plan EDP 6**. Overall, there were echolocation calls recorded of seven bat species: namely, common pipistrelle, soprano pipistrelle, noctule, Leisler's, serotine, a *Myotis* sp. and long eared bat. The results are summarised in **Table EDP A5.5**.

Table EDP A5.5: Summary Results of Automated Detector Surveys

Survey Month	Species Recorded	No. of Passes Recorded	% of Total
April 2018	Common pipistrelle	2	33.33
	Noctule	2	33.33

	Myotis sp.	2	33.33
	Total	**6**	
May 2018	Common pipistrelle	369	89.8
	Soprano pipistrelle	10	2.4
	Noctule	19	4.6
	Myotis sp.	6	1.5
	Long-eared bat	5	1.2
	Leisler's	2	0.5
	Total	**411**	
June 2018	Common pipistrelle	863	71.3
	Soprano pipistrelle	41	3.4
	Noctule	289	23.9
	Myotis sp.	8	0.7
	Nathusius' pipistrelle	9	0.7
	Leisler's bat	1	<0.1
	Total	**1,211**	
May 2021	Common pipistrelle	221	79.2
	Soprano pipistrelle	19	6.8
	Noctule	34	12.2
	Myotis sp.	1	0.4
	Serotine	4	1.4
	Total	**279**	
September 2021	Common pipistrelle	690	86.0
	Soprano pipistrelle	66	8.2
	Noctule	37	4.6
	Myotis sp.	5	0.6
	Long-eared bat	1	0.1
	Leisler's bat	3	0.4
	Total	**802**	

A5.33 The sampling period in April recorded a very low number of bat calls in comparison with the number of bat calls recorded during other sampling periods. The June recording period recorded two-thirds more than the total recorded in May, as well as recording the greatest diversity of species. Surveys during 2021 recorded similar levels of activity and range of species, although serotine was recorded where it was not in 2018. The Anabats were deployed in locations 1 and 2 during 2018 sampling periods and 2 and 3 during 2021, as shown on **Plan EDP 6**.

A5.34 Static detector location 1 related to a position on the corner of hedgerow H3 and H4 between mature trees T2 and T3. The detector in location 2 was sited along a hedgerow, which runs through the centre of the site (H6). Detector location 3 was situated on the site's southern boundary, where vehicle access is anticipated to necessitate a breach in the existing hedgerow. The moderate levels of calls recorded in all detector locations indicate that they are all key foraging and commuting routes.

Appendix EDP 6
Biodiversity Net Gain Calculations

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Land North of Barkby Road, Syston

Headline Results

Return to results menu

On-site baseline	*Habitat units*	16.68
	Hedgerow units	7.60
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	19.17
	Hedgerow units	11.93
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	14.94%
	Hedgerow units	57.04%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	2.49
	Hedgerow units	4.33
	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*	14.94%
	Hedgerow units	57.04%
	River units	0.00%
Trading rules Satisfied?		Yes

Plans

Plan EDP 1	Extended Phase 1 Survey (edp4685_d009a 25 June 2018 LB/JL)
Plan EDP 2	Statutory Designated Sites Plan (edp4685_d025a 02 November 2021 GY/WC)
Plan EDP 3	Non-Statutory Designated Sites Plan (edp4685_d026a 02 November 2021 GY/WC)
Plan EDP 4	Bird Breeding Survey Results April 2018 (edp4685_d020b 22 October 2021 LB/WC)
Plan EDP 5	Breeding Bird Survey Results May 2021 (edp4685_d027a 02 November 2021 GY/WC)
Plan EDP 6	Bat Transect Route and Static Detector Locations (edp4685_d018b 22 October 2021 GY/CB)
Plan EDP 7	Bat Transect Survey Results – May 2018 (edp4685_d019c 02 November 2021 CR/CB)
Plan EDP 8	Bat Transect Survey Results – June 2018 (edp4685_d021c 02 November 2021 PD/CB)
Plan EDP 9	Bat Transect Survey Results May 2021 (edp4685_d028a 02 November 2021 GY/WC)
Plan EDP 10	Bat Transect Survey Results – September 2021 (edp4685_d030a 02 November 2021 GY/WC)
Plan EDP 11	Pond Location Plan (edp4685_d029a 02 November 2021 GY/WC)
Plan EDP 12	Biodiversity Impact Assessment: Post-Development Habitats (edo4685_d023 03 November 2021 GY/TR)

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client

Taylor Wimpey (UK) Ltd

project title

Land North of Barkby Road, Syston

drawing title

Plan EDP 1: Extended Phase 1 Survey

date	25 JUNE 2018	**drawn by**	LB
drawing number	edp4685_d009a	**checked**	JL
scale	Refer to scale bar	**QA**	PD

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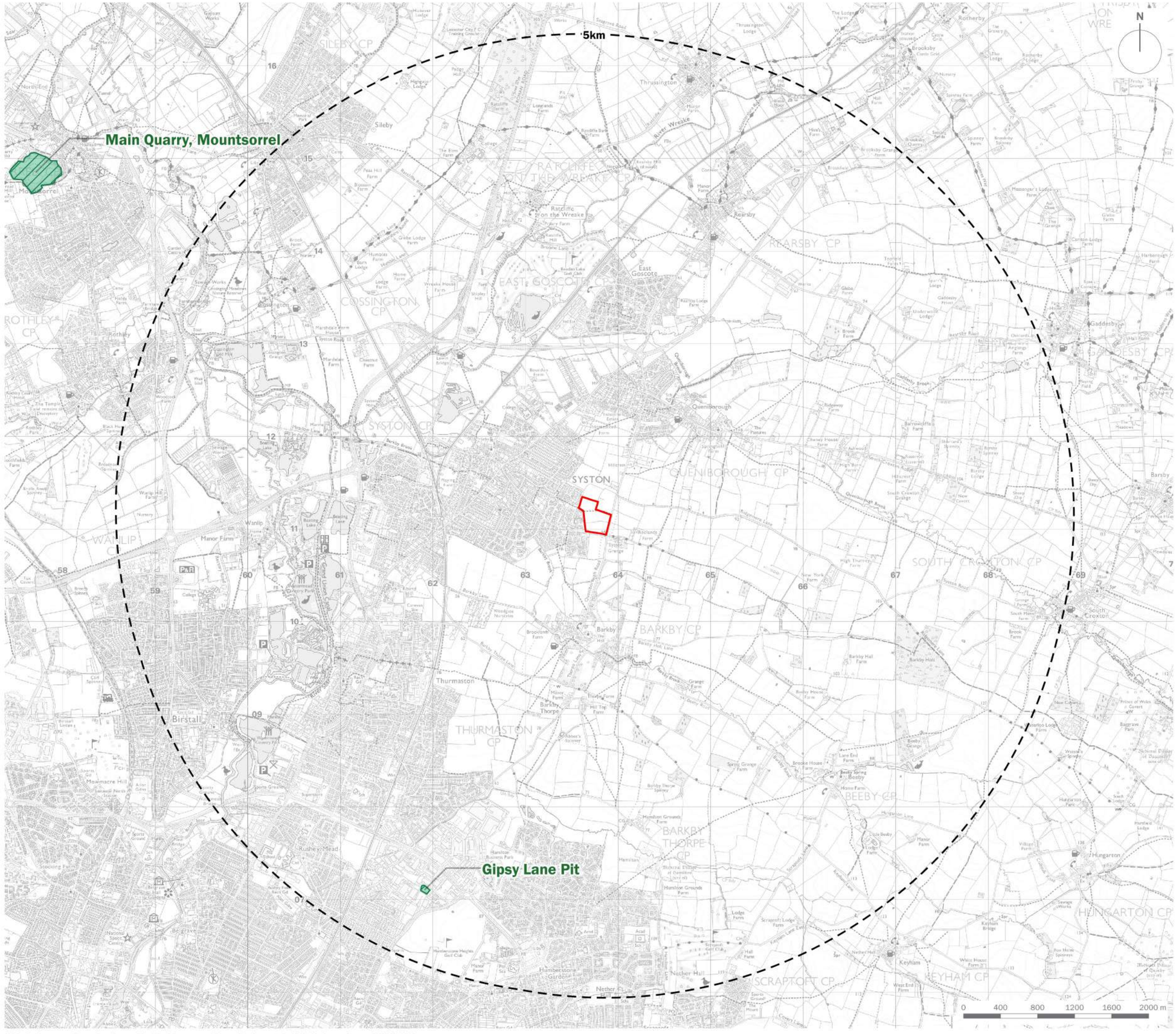

Site Boundary

5km Buffer

Site of Special Scientific Interest (SSSI)

client

Taylor Wimpey (UK) Ltd

project title

Land North of Barkby Road, Syston

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Plan EDP 2: Statutory Designated Sites Plan

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d025a**	checked	**WC**
scale	**1:40,000 @ A3**	QA	**RB**

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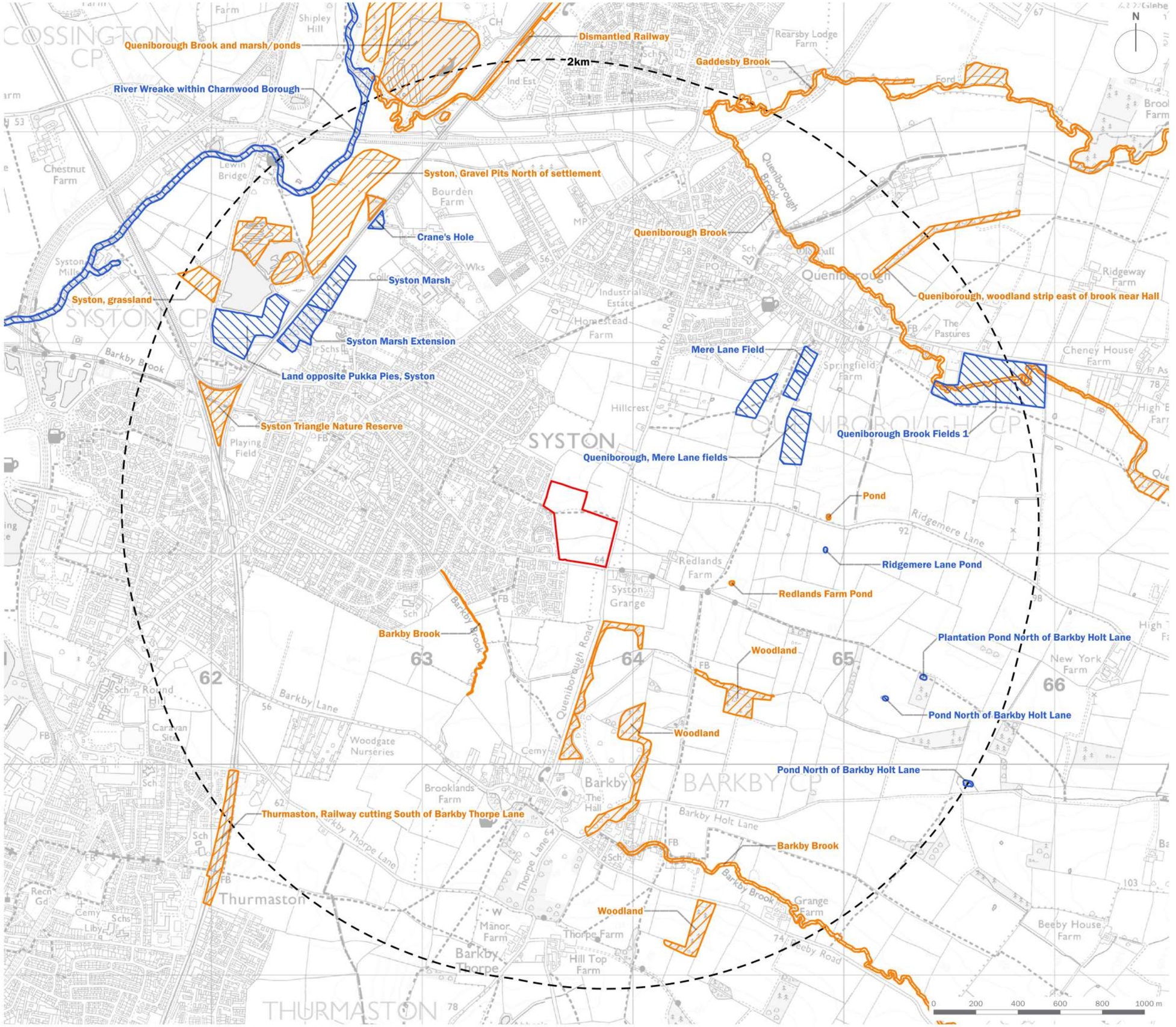

Site Boundary

2km Buffer

Historic Local Wildlife Site

Local Wildlife Site

client

Taylor Wimpey (UK) Ltd

project title

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Plan EDP 3: Non-statutory Designated Sites Plan

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d026a**	checked	**WC**
scale	**1:17,500 @ A3**	QA	**RB**

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Plan EDP 4: Breeding Bird Survey Results April 2018

date	**22 OCTOBER 2021**	drawn by	**LB**
drawing number	**edp4685_d020b**	checked	**WC**
scale	**1:2,000 @ A3**	QA	**PD**

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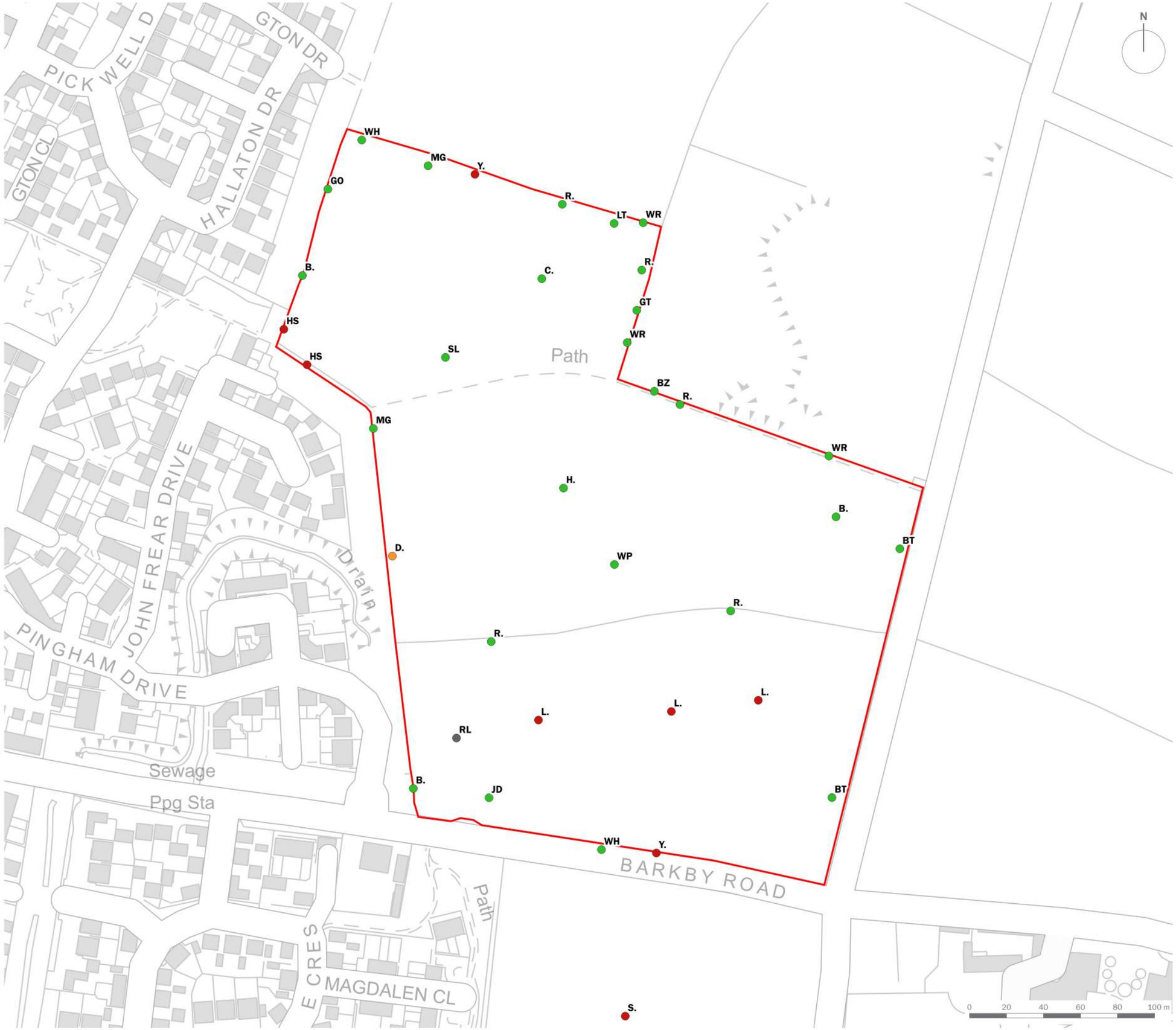

Site Boundary

Red Listed Bird

Amber Listed Bird

Green Listed Bird

No status

Species

B.	Blackbird
BT	Blue Tit
BZ	Buzzard
C.	Carrion Crow
D.	Dunnock
GO	Goldfinch
GT	Great Tit
H.	Grey Heron
HS	House Sparrow
JD	Jackdaw
L.	Lapwing
LT	Long-tailed Tit
MG	Magpie
R.	Robin
RL	Red-legged Partridge
S.	Skylark
SL	Swallow
WH	Whitethroat
WP	Woodpigeon
WR	Wren
Y.	Yellowhammer

client

Taylor Wimpey (UK) Ltd

project title

Land North of Barkby Road, Syston

drawing title

Plan EDP 5: Breeding Bird Survey Results May 2021

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d027a**	checked	**WC**
scale	**1:2,000 @ A3**	QA	**RB**

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client

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project title

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drawing title

Plan EDP 6: Bat Transect Route and Static Detector Locations

date	**22 OCTOBER 2021**	drawn by	**GY**
drawing number	**edp4685_d018b**	checked	**CB**
scale	**1:2,000 @ A3**	QA	**PD**

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Site Boundary

Transect Route

May Dawn

Noctule

Common Pipistrelle

May Dusk

Myotis spp.

Nathusius Pipistrelle

Common Pipistrelle

Soprano Pipistrelle

client

Taylor Wimpey (UK) Ltd

project title

Land North of Barkby Road, Syston

drawing title

Plan EDP 7: Bat Transect Survey Results – May 2018

date	**02 NOVEMBER 2021**	drawn by	**CR**
drawing number	**edp4685_d019c**	checked	**CB**
scale	**1:1,750 @ A3**	QA	**PD**

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Site Boundary

Transect Route

Common Pipistrelle

Noctule

Soprano Pipistrelle

Myotis sp.

client

Taylor Wimpey (UK) Ltd

project title

Land North of Barkby Road, Syston

drawing title

Plan EDP 8: Bat Transect Survey Results – June 2018

date	**02 NOVEMBER 2021**	drawn by	**PD**
drawing number	**edp4685_d021c**	checked	**CB**
scale	**1:2,000 @ A3**	QA	**JTF**

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Plan EDP 9: Bat Transect Survey Results May 2021

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d028a**	checked	**WC**
scale	**1:2,000 @ A3**	QA	**RB**

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Plan EDP 10: Bat Transect Survey Results September 2021

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d030a**	checked	**WC**
scale	**1:2,000 @ A3**	QA	**RB**

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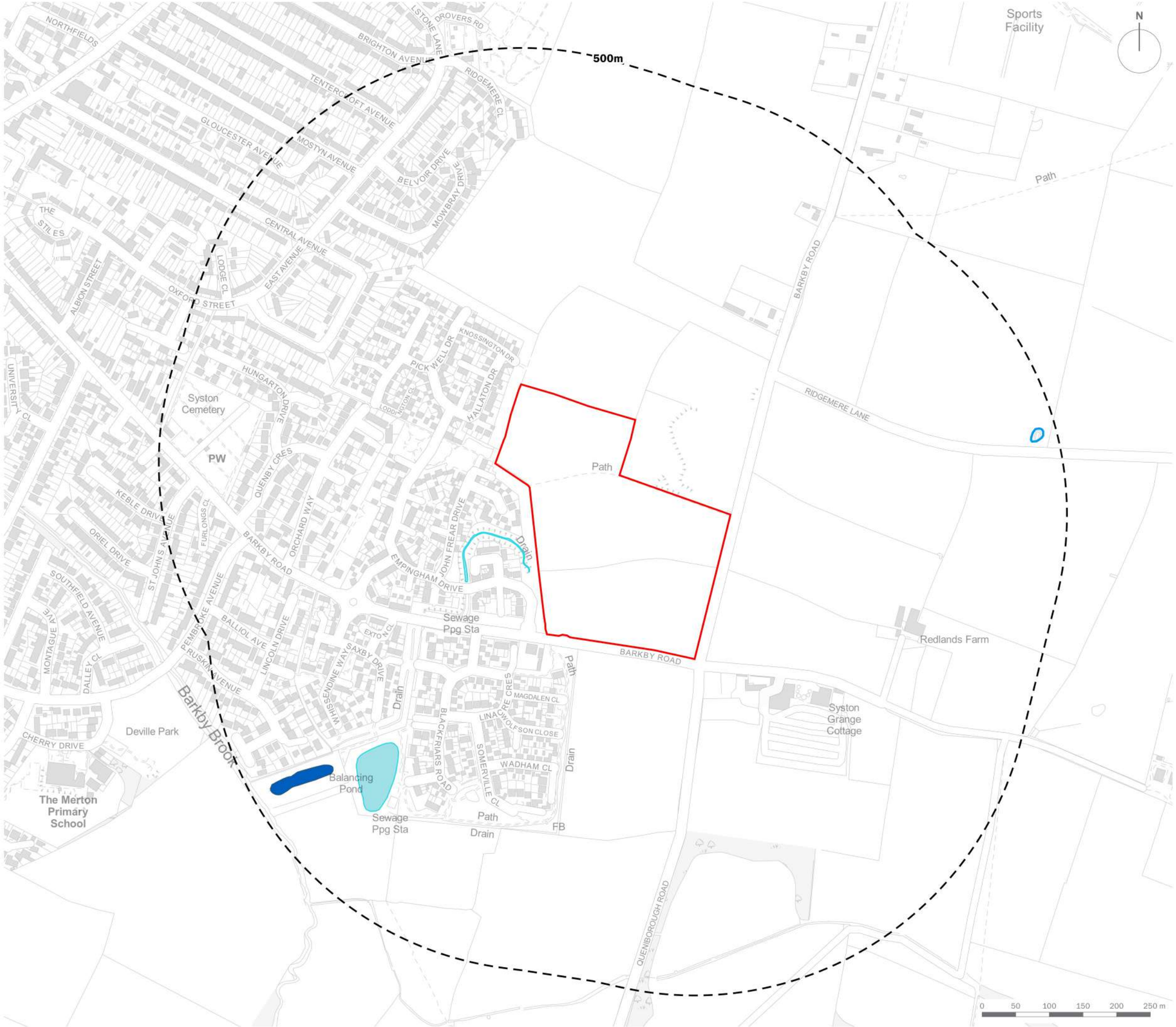

client

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Plan EDP 11: Pond Location Plan

date	**02 NOVEMBER 2021**	drawn by	**GY**
drawing number	**edp4685_d029a**	checked	**WC**
scale	**1:5,500 @ A3**	QA	**RB**

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Siote Boundary

Area Habitats - New Habitats

- Development
- Artificial Unvegetated, Unsealed Surface (LEAP)
- Modified Grassland
- Other Neutral Grassland (Marshy Grassland)
- Mixed Scrub
- Other Neutral Grassland (Wildflower)
- Marginal Plants (Reedbed)
- Ponds (Non- Priority Habitat)
- Other Woodland; Broadleaved

Note: Area habitats are split 70:30 between "developed land; sealed surface" and "vegetated garden"

Linear Habitats

- New Species-rich Native Hedgerow
- Lost Native Hedgerow with Ditch
- Retained Native Hedgerow
- Retained Native Hedgerow with Ditch
- Enhanced Native Hedgerow
- Enhanced Native Hedgerow with Ditch
- Proposed Street Tree

client

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Plan EDP 12: Biodiversity Impact Assessment (Post-Development Habitats)

date	**03 NOVEMBER 2021**	drawn by	**WC**
drawing number	**edp4685_d023**	checked	**TR**
scale	**1:1,750 @ A3**	QA	**GY**

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