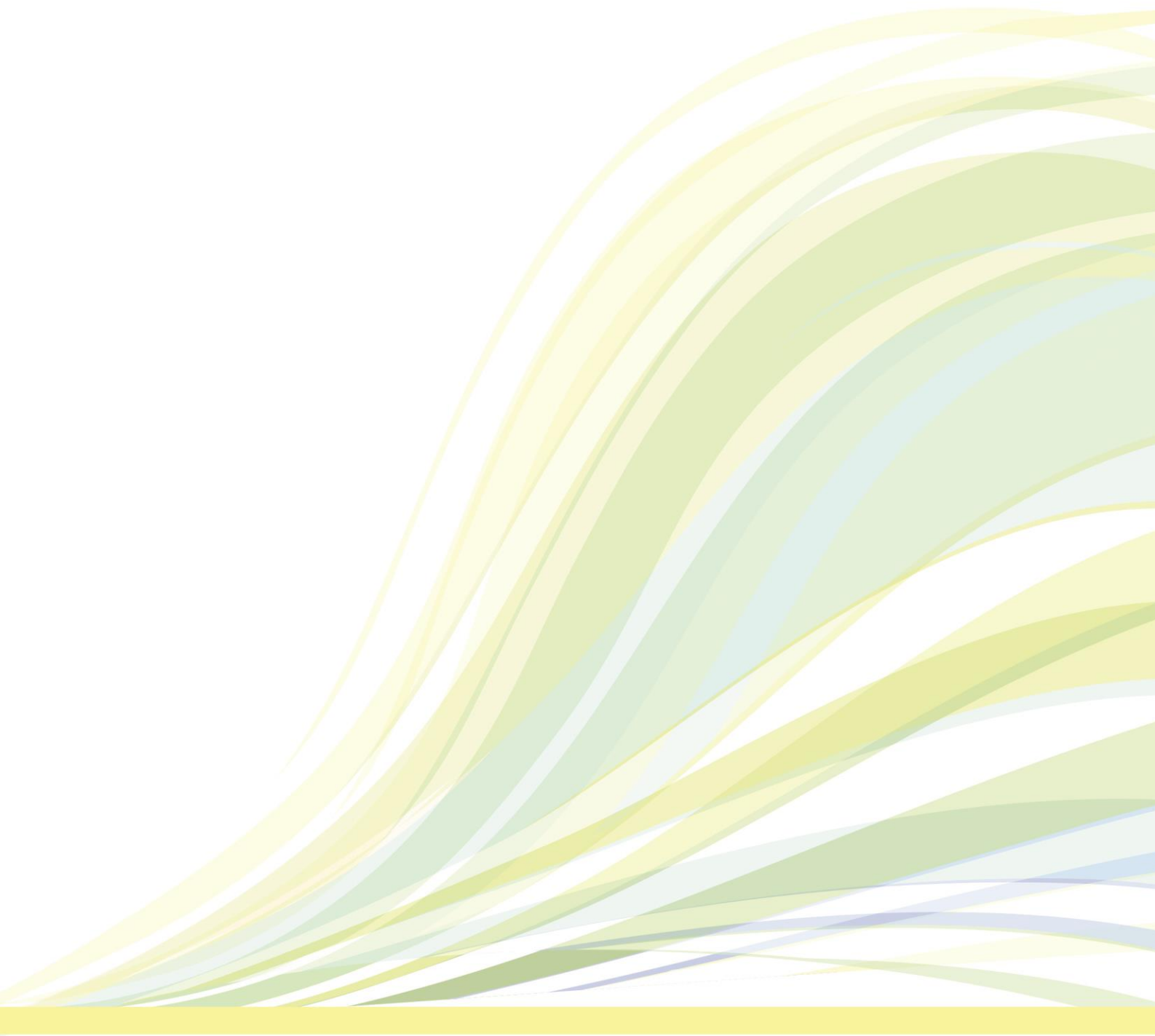




South West Milton Keynes

Updated Environmental Statement Volume 2 - Appendices

Carter Jonas LLP

MAY 2020

APPENDIX 7.4:

BADGER SURVEY

Legislation

Badgers and their setts are protected under the Protection of Badgers Act 1992 which, in part, makes it an offence to:

- Kill, injure or take a badger;
- Destroy or damage a badger sett or any part of it;
- Obstruct access to, or any entrance of, a badger sett
- Disturb a badger whilst it is occupying a sett.

Impacts to badgers and their setts should be avoided in the first instance by retaining setts and implementing an appropriate buffer distance to limit disturbance. Where this is not possible, a Natural England licensing system exists to permit certain works that would otherwise be illegal. This can include direct or indirect impacts which may result in any of the above offences. Where a licence has been granted, permitted impacts to a badger sett can only be carried out between the months of July and November (inclusive) and following an agreed method statement.

Methods

A dedicated badger survey was conducted by Carly Howes GradCIEEM and Alexandra Cole ACIEEM on 17-18th and 24th March 2020 using widely adopted survey methods, searching the Site and immediately adjacent areas for field signs of badger and mapping any present such as:

- Feeding signs such as snuffle entrances made during foraging
- Hairs caught on vegetation or fences
- Latrines, usually positioned on territorial boundaries
- Foraging tracks through vegetation or under fences
- Badger setts

When badger setts are found the number of entrances are recorded as well as the level of usage. Recording this information gives an indication of the type of sett by categorising it according to the criteria listed in Table 1 below (Harris *et al.* 1989, Cresswell *et al.* 1990, Wilson *et al.* 1997).

Table 1 Criteria used to determine sett type

Sett Type
Main Setts - These usually have a large number of entrances with large spoil heaps, and the sett generally looks well used. There will be well-used paths to and from the sett and between sett entrances. Although normally the breeding sett is in continuous use, it is possible to find a main sett that has become disused due to excessive digging or some other reason; it should be recorded as a disused main sett. In the first survey, the average size of an active main sett was twelve entrances (including all categories of use).
Annexe setts - They are often close to a main sett, usually less than 150 metres away, and are usually connected to the main sett by one or more obvious well-worn paths. They usually have several entrances, but may not be in use all the time even if the main sett is very active. In the first survey the average size was five entrances (including all categories of use).

Subsidiary setts - These often only have a few; four (including all categories of use) was the average number in the first survey. They are usually at least 50 metres from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active.
Outlying setts - These usually have only one or two entrances, often have little spoil outside the entrance, have no obvious path connecting with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as badger setts by the shape of the tunnel (not the actual entrance entrance), which is usually at least 250mm in diameter, and is rounded or a flattened oval shape. Fox and rabbit tunnels are smaller and often taller than broad.
Entrance Type
Well used entrances - These are clear of any debris or vegetation, are obviously in regular use, and may or may not have been excavated recently.
Partially used entrances - These are not in regular use and have debris such as leaves and twigs in the entrance, or have moss and/or other plants growing in or around the entrance. Partially used entrances could be in regular use after a minimal amount of clearance.
Disused entrances - These have not been in use for some time, are partially or completely blocked, and could not be used without a considerable amount of clearance. If the entrance has been disused for some time, all that may be visible is a depression in the ground where the entrance used to be, and the remains of the spoil heap, which may be covered in moss or plants.

Limitations

Where setts were identified outside of the Site boundary a full inspection was not possible. These setts were surveyed from the Site boundary.

Results

Desktop Study

BMERC have returned 30 records of badger *Meles meles* from within the search area dating from 1967 to 2017. The closest record is for a deceased badger found dead on Standing Way (A421), immediately to the north of the Site dating to 2015, with another record associated with Tattenhoe Park to the north, beyond the A421, dating to 2008. The closest identified sett is within Woodpond Farm Wood c. 07km north-west of the Site beyond the A421, dating to 1974.

Survey Results

No active badger setts were identified within the Site boundary during the survey. However, a two hole, partially used, outlier sett was identified just off-site; adjacent to a barn in F1, off Whaddon Road. The first sett entrance had a small amount of leaf litter and twigs within the entrance, with the second appearing to be collapsed.

Two recently used badger latrines were identified within F13, just south of H27. These latrines were located next to a well-used mammal path, which at the time of survey had deer prints but is likely used by several species, including badger. The latrines were also located in the vicinity of a previously identified (historic survey data) disused outlier sett. These

setts were present during the survey and remained as previously described – collapsed/partially collapsed and occupied by rabbits.

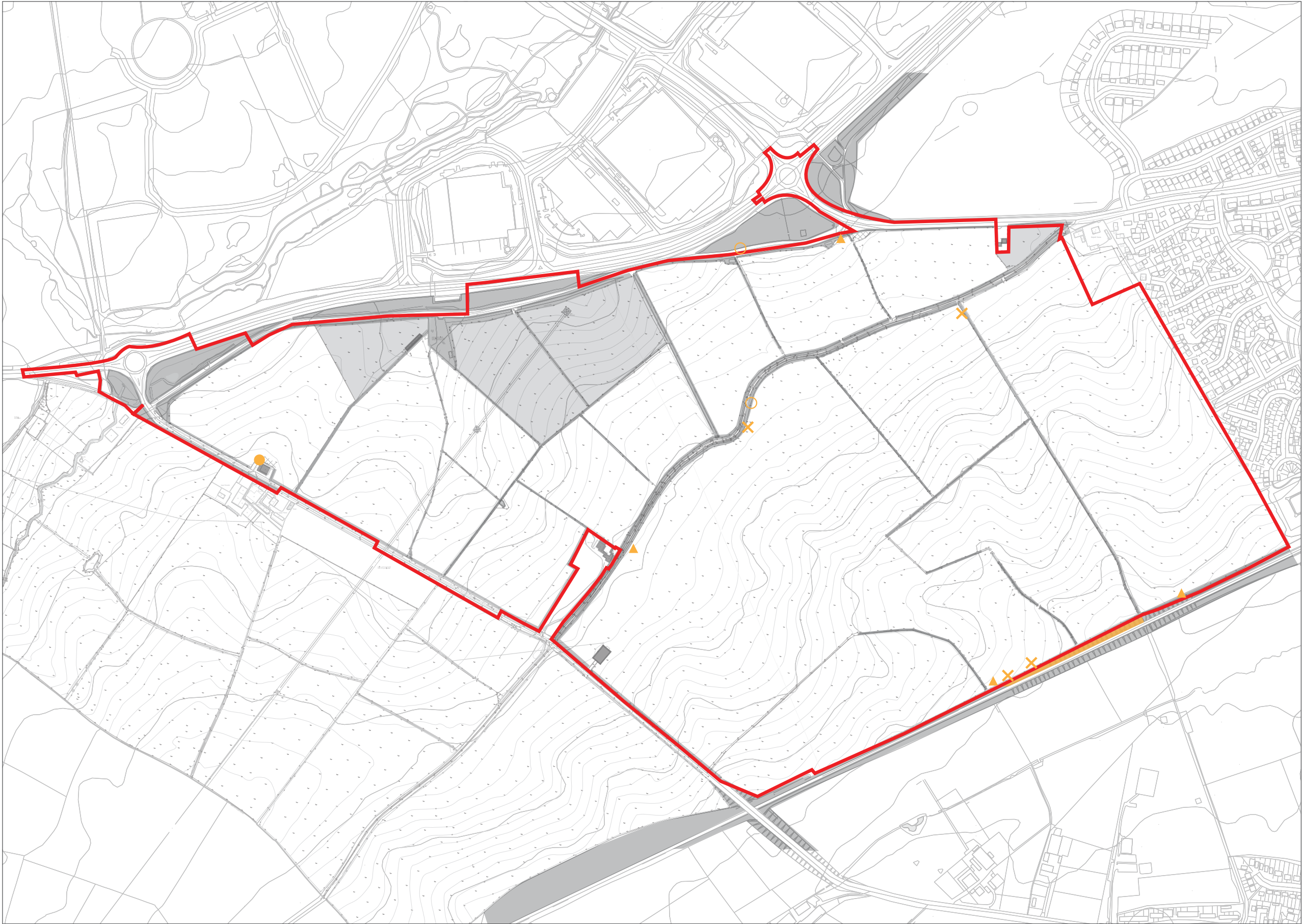
Latrines were also identified during previous survey work in F10 along H22, and in F14 at the northern end of H30.

Badger prints were identified within F13, at the south-western end of H27 and also along the base of the railway embankment to the south of the Site. A main sett was previously identified within the railway embankment and comprised 8 active holes, 2 partially active holes and 4 disused holes. The location of this sett was outside of the scope of this survey. However, given the identified badger activity along the railway it can be assumed that this sett remains active.

See Table 2 and Badger Survey Plan (CSA/4857/124) for full badger survey results.

Table 2 Badger survey results

Date	Grid Ref	Accuracy	Sett Type	Hole Type	Notes
17/03/2020	SP 82492 32483	+/- up to 4m	Outlier sett	Partially used	2x sett entrances on bank at edge of property. 1x entrance with leaf litter and twigs, 1x entrance collapsed. No sign of current activity.
	SP 84256 32213	-	NA	NA	Badger prints.
18/03/2020	SP 83434 32541	+/- up to 6m	NA	NA	2x fresh latrines.
	SP 83211 32312	-	NA	NA	Badger prints.



- Site Boundary
- Outlier sett
- Disused outlier setts
- Badger prints
- Latrine
- Main sett, off-site (likely extent)



Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

† 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	South West Milton Keynes	Date	March 2020	Drawing No.	CSA/4857/124
Drawing Title	Figure 7c - Badger Survey Plan	Scale	NTS	Rev	-
Client	Taylor Wimpey UK Ltd, William Davis Ltd, Hallam Land Management Ltd, Bellcross Homes and Connolly Homes	Drawn	AC	Checked	JW

APPENDIX 7.5:

BATS SURVEY

Legislation

All species of British bats are legally protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017. These Regulations make it an offence to:

- Deliberately capture, injure, or kill a bat;
- Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young;
- Damage or destroy a breeding site or resting place used by bats; or
- Be in possession of, transport, sell, exchange or offer to sell/exchange a bat (dead or alive) or any part of a bat.

All bats and their roosts in England, Scotland and Wales were originally protected under the Wildlife & Countryside Act 1981. Subsequent amendments to the legislation for England and Wales has removed bats from most of the provisions of the Act, however it remains an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any structure or place that a bat uses for shelter or protection.

Disturbance of bats is covered by both the 2017 Regulations and the 1981 Act, with the magnitude of disturbance critical. Disturbance that impairs survival or successful reproduction would be covered by the Regulations with no legal defence existing. Less significant acts of disturbance may only be covered by the Wildlife & Countryside Act 1981, which includes some legal defences that may be applied in certain circumstances.

It is important to note that bat roosts are protected throughout the year, regardless of whether or not bats are present at the time. Under the Conservation of Habitats and Species Regulations the offence of damaging or destroying a breeding site or resting place of bats is not subject to any legal defence, i.e. an offence will have been committed even if the damage or destruction occurs accidentally.

Licensing

Where development is proposed that would result in an offence under the Habitats and Species Regulations a European Protected Species (EPS) licence needs to be granted by Natural England to permit an act that would otherwise be unlawful. This provides for a specific derogation from the legislation, to prevent a legal infringement occurring. To obtain an EPS licence for development it must be demonstrated that the purpose of the act to be licensed is for:

- *“preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic*

nature and beneficial consequences of primary importance for the environment" (Regulation 53(2)(e)).

In addition, Natural England will not grant an EPS licence unless they are satisfied that:

- *"There is no satisfactory alternative" (Regulation 53(9)(a)); and*
- *"The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" (Regulation 53(9)(b)).*

Methods

Preliminary Roost Assessment- Trees & Structures

A Preliminary Roost Assessment (PRA) was undertaken by Jamie Woollam MCIEEM across March and April 2019. The aim of the PRA was to determine the suitability of trees and buildings at the Site to support roosting bats. The methods described below have been followed with due consideration of the current survey guidelines (BCT, 2016).

A detailed inspection of semi- and mature trees at the Site was undertaken from ground level to (i) identify preliminary roosting features (PRFs) such as rot holes, cavities and split limbs, and (ii) locate any evidence of bats such as live or dead specimens, bat droppings, urine splashes, fur-oil staining, feeding remains (e.g. moth wings) and/or squeaking noises. A similar external inspection of agricultural buildings was undertaken. The inspections were carried out systematically around all parts of the tree/structure, from all angles and from both close to the trunk and further away. Equipment used included a ladder, endoscope, high-powered torches and close-focusing binoculars, as appropriate.

Following the inspections each tree or building was assigned one of the following categories in respect of its potential to support roosting bats (adapted from Collins, 2016):

- *Negligible*: Negligible habitat features likely to be used by roosting bats
- *Low*: a structure or tree with one or more potential roost sites (PRFs) that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis by large numbers of bats. A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential would also be characterised as Low
- *Moderate*: a structure or tree with one or more PRFs that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat; but unlikely to support a roost of high conservation status.

- *High*: a structure or tree with one or more PRFs that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Activity Surveys & Remote Monitoring

A series of bat activity surveys and remote monitoring have been conducted at the Site in 2008 and 2013:

- Emergence surveys of nine trees across the Site by Aspect ecology **04, 21, 26, 28 August & 01, 04, 10, 21 September 2008.**
- **Activity transect surveys April to September 2013** by FPCR covering the entire site with two transects route. These included 23 April (dusk), 30 & 31 May (dusk and dawn), 26 June (dusk), 08 July (dusk), 22 & 23 August (dawn) and 09 September (dusk).
- **Remote monitoring April to September 2013** by FPCR, utilising a single detector (Anabat SD1) April to June, and two detectors (Anabat SD1) July to September. Detectors were deployed in nine locations across the Site for 5 nights on each occasion.

Full details of the above survey work and results can be found within Chapter 7 Environmental Statement, Salden Chase, North East Aylesbury Vale, 2010 (Aspect Ecology) and Bat survey report, SWMK November 2014 (FPCR).

Confirmatory bat surveys are scheduled from May 2020 onwards to be undertaken by CSA Environmental.

Results

Preliminary Roost Assessment

The results of the PRA for buildings and trees are presented in Table 7.5.A below. For ease of reporting those trees of negligible potential to support roosting bats have excluded from the table below and attached plan.

Building references are based on the Habitats plan (CSA/4857/115; Figure 7a). Individual and grouped tree references are based on the Tree Survey and Constraints Plan (BHA/472/01). Locations of all trees /groups with potential to support bats and which subject to proposed works/felling are highlighted on the Bat Survey Plan (Figure 7d). A number of individual trees not shown on the tree survey plan, which may be adversely affected by the proposed scheme have been denoted by T+n in the table.

Table 7.5.A Preliminary Roost Assessment Results &

Structure/ Tree (Individual or group) Reference	Structure Description / Tree Species	Features / Evidence	Bat Roost Potential	Anticipated Effects of Proposed Scheme	Safeguarding/ Mitigation
Buildings					
B1	Agricultural Shed (in-use), breeze block and corrugated asbestos roof	None (external only)	Negligible	To be demolished	-
B2	Agricultural Barn derelict- brick wood and metal construction	None	Negligible	To be demolished	-
B3	Agricultural structure, metal construction, roof only	None	Negligible	To be demolished	-
B4	Agricultural Barn (in-use), metal frame	None (external only)	Negligible	To be demolished	-
Individual Trees					
T1	Common ash	Wood pecker hole, damage to branches	Moderate	Retained	-
T2	Common ash	Storm damage to limbs, woodpecker holes	Moderate	Retained	-
T4	Common ash	Rot on limbs, storm damage	Moderate	Potential felling required subject to detailed design	Aerial inspection/ nocturnal survey prior to felling
T5	Common ash	Woodpecker holes and limb rot	Moderate	Retained	-
T6	Common Ash	Woodpecker hole (x1)	Low	Retained	-
T7	Common Ash	Storm damage to limbs and stems, rot/dead wood	Moderate	To be felled for vehicular access road	Aerial inspection/ nocturnal survey prior to felling

T9	Common Ash (multi-stem)	Lateral occlusion, various cavities/bark	High	Retained	-
T10	Common ash	Significant storm damage and cavities	Moderate	Retained	-
T11	Common ash	Large cavities and rot holes	High	Potential felling required subject to detailed design	Aerial inspection/ nocturnal survey prior to felling
T16	Common ash	Rot in main stem forming cavity	Moderate	Retained	-
T17	Hybrid poplar	Multiple woodpecker holes and cavities	High	Retained	-
T18	Hybrid poplar	Multiple woodpecker holes and cavities	High	Retained	-
T19	Common ash	Split limb, cavities	Moderate	Retained	-
T21	Common ash	Rot on limbs, storm damage	Moderate	Retained	-
T22	Common ash	Rot on limbs, storm damage	Moderate	Retained	-
T23	Common ash	Split limb	Moderate	Retained	-
T24	Common ash	Woodpecker holes, storm damage	Moderate	Retained	-
T25	Common ash	Woodpecker holes, limb split	Moderate	Retained	-
T26	Common ash	Woodpecker holes, limb split	Moderate	Retained	-
T27	Common ash	Single limb wound	Low	Retained	-
T30	Common ash	Rot hole with cavity facing upwards	Low	To be felled for vehicular access road	Precautionary approach to felling
T33	Common ash	Lost limb and storm damage	Moderate	Retained	-
T34	Common ash	Lost limb and storm damage	Moderate	Retained	-
T43	Common ash	Multiple woodpecker holes and cavities	High	Retained	-
T49	Horse chestnuts (planted)	Single rot holes, and sufficient size and age to contain further PRFs	Low	To be felled for vehicular access road	Precautionary approach to felling
T50					
T51					
T52	Horse chestnut	Single rot hole	Low	Retained	-
T54	Common ash	Single rot hole on limb	Low	Retained	-
T55	Common ash	Woodpecker hole, rot holes	Moderate	Retained	-
T57	Field maple	Lower trunk damage	Low	Retained	-
T63	Common ash	Woodpecker holes and limbs dropped	High	Retained	-
T64	Common ash	Single rot hole	Low	Retained	-
T67	Common Ash	Woodpecker holes and large cavity	High	Retained	

T68	Black poplar	Lifted bark, rot holes, likely cavities	Moderate	Retained	-
T69	Common ash	Extensive ivy cover	Low	Retained	-
T71	Pedunculate oak	Rot holes, wounds in limbs, split limbs	High	Retained	-
T72	Common ash	Ivy cover	Low	Retained	-
T+1	Common ash	Rot holes and woodpecker holes	Moderate	Potential felling required subject to detailed design	Aerial inspection/ nocturnal survey prior to felling
Groups of Trees					
G7	Goat willow (3)	Trunk cavities	Moderate	Retained	-
G8	Dense scrub with number of ash trees	Obscured (off-site) assumed moderate potential	Moderate	Retained (affected by EWR)	-
G9	Common ash trees	Small number of rot holes, limb loss, lateral cavities and woodpecker holes	Moderate	Retained	-
G10	Common ash, field maple and hornbeam,	Small number of rot holes, limb loss, lateral cavities and woodpecker holes	Moderate	Retained	-
G11 (Woodland W5)	Pedunculate oak, Scots pine and common ash	Range of features, including extensive rot holes, standing deadwood, cavities, split limbs, bark	High	A number of trees to be felled for vehicular access road	Aerial inspection/ nocturnal survey prior to felling subject to detailed design
G12	Common ash and horse chestnut trees	Small number of rot holes, limb loss, lateral cavities and woodpecker holes	Moderate	Retained	-
G14 (Woodland W4a &b)	Woodland of oak, ash, field maple and hybrid black poplar	Range of features, including extensive rot holes, standing deadwood, cavities, split limbs, bark	High	A number of trees to be felled for vehicular access road	Aerial inspection/ nocturnal survey prior to felling subject to detailed design
G20	Common lime, pedunculate oak and common ash	Range of features, including extensive rot holes, standing deadwood, cavities, split limbs, bark	High	Retained	-

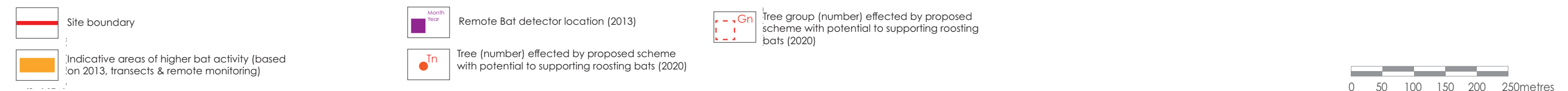
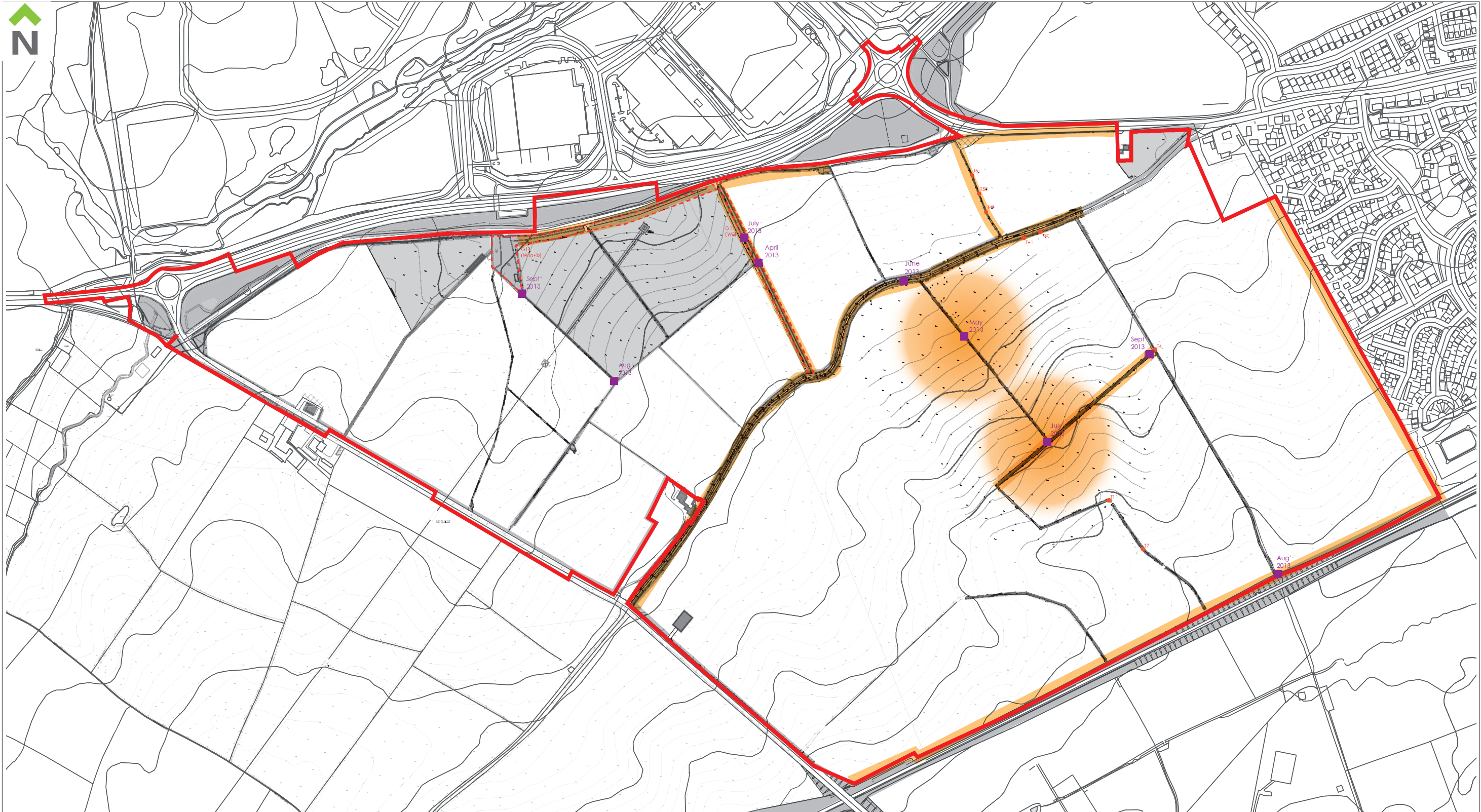
Nocturnal Bat Surveys & Remote Monitoring

No bats were observed to emerge from any trees at the Site by Aspect Ecology in 2008. Bat activity recorded anecdotally during these surveys were dominated by common pipistrelle, with occasional soprano pipistrelle and noctule bats. No transect or remote monitoring works were undertaken in 2008.

Activity transects and remote monitoring undertaken in 2013 by FPCR revealed low to moderate levels of bat activity with few species recorded. Bats identified were dominated by common pipistrelle, with occasional soprano pipistrelle, noctule and brown long-eared bat. Occasional passes by unidentified Myotis *Myotis* sp. and Nyctalid *Nyctalus* sp., and a single pass of Nathusius' pipistrelle bat were also recorded. In respect of the distribution of bat activity found in 2013, the following observations were made (as illustrated on the Bat Survey Plan, Figure 7d):

- Highest levels of activity during transect surveys were found in the following locations:
 - the central northern area around H21, W5 and H19,
 - along Weasel lane on both the north and south including H27, H18 and H21,
 - H24, H23 and W4b on the northern boundary,
 - H31 to the southern-central area,
 - The eastern boundary adjacent to gardens and woodland W7
 - Along the southern boundary.
- Highest activity levels during static monitoring were along hedgerows H28 and H31 to the centre of the site, south of Weasels lane.

No targeted tree surveys or aerial inspections were undertaken in 2013 to identify individual roosts. No roosts were anecdotally recorded during 2013 surveys although given the timing of activity record at the Site it is anticipated that bat roosts are present in close proximity to the site (trees or structures), if not within trees at the Site.



Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT

† 01462 743647
 e ashwell@csaenvironmental.co.uk
 w csaenvironmental.co.uk

Project	South West Milton Keynes	Date	April 2020	Drawing No.	CSA/4857/127
Drawing Title	Figure 7d - Bat Survey Plan	Scale	Refer to scale	Rev	-
Client	Taylor Wimpey UK Ltd, William Davis Ltd, Hallam Land Management Ltd, Bellcross Homes and Connolly Homes	Drawn	CH	Checked	JW

APPENDIX 7.6:

RIPARIAN MAMMALS SURVEY

Legislation

Water Vole

Water voles have full legal protection under the Wildlife & Countryside Act 1981 (as amended) and Countryside Rights of Way Act 2000. These regulations make it an offence to:

- Intentionally kill, injure or take water voles
- Possess or control live or dead water voles or derivatives
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- Intentionally or recklessly disturb water voles whilst occupying a structure or place used for that purpose
- Sell water voles or offer or expose for sale or transport for sale
- Publish or cause to be published any advertisement which conveys the buying or selling of water voles

Water voles are also a species of principal importance under the Natural Environment and Rural Communities (NERC) Act 2006, and local authorities and other public bodies therefore have a legal duty to take their conservation into account.

Otter

The European otter and its respective habitats are fully protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended) and Regulation 43 of the Conservation of Habitats & Species Regulations 2017. These regulations make it an offence to:

- Intentionally or recklessly capture, kill, disturb or injure otters
- Intentionally or recklessly damage or destroy a breeding or resting place of an otter
- Obstruct access to their resting or sheltering places
- Possess, sell, control or transport live or dead otters, or parts of otters

In addition, the otter is listed as a Priority Species in the UK Biodiversity Action Plan and a globally threatened species on the IUCN Red Data List. Special Areas of Conservation (SACs) can be designated on the basis on the presence of otters.

Methods

All watercourses and water bodies within the Site and on the Site boundaries were surveyed for water vole and otter on 23 April 2020, led by Jamie Woollam MCIEEM CEcol. Any other water vole or otter field signs noted during other Site visits were also recorded.

Surveys were undertaken with due consideration for the Water Vole Conservation Handbook. Water vole field signs include droppings and

latrines, feeding stations, footprints, runways, lawns, burrows and nests. The optimal period for water vole survey is late April to early October, with peaks of activity typically in May and August.

Otter field signs include spraints (conspicuous black faeces with or without mucus coating), footprints, feeding remains (fish or amphibian carcasses/bones) and slides (frequently used routes used to get into waterways). Occasionally 'couches' (resting places including 'natal couches' made in reeds to rest/raise cubs) or holts (dens in bank or pollarded trees/tree stumps) are found, although some of these features can be less diagnostic when identifying current presence of otter.

Limitations

There were no limitations to the survey.

Results

Desk Study

BMERC returned two records of water vole *Arvicola amphibius* located c. 1.3km north-east associated with Loughton Brook and c. 2km east associated with Blue Lagoon LNR, dating to 1976 and 1989, respectively. These records are well removed from the Site with no hydrological connections and is of significant age. Furthermore, water vole are thought to now be largely absent from the Milton Keynes area due to the prevalence of American mink *Neovison vison* and the decline of suitable habitat. A single record for two adult otter *Lutra lutra* was returned c. 0.3km south-west of the Site, dating to 2017.

Survey Results

No field signs of water vole or otter were identified during the surveys.

Surveys were limited to very shallow ditches in W1, W4a, within F3, along H8 and H9, and along H33 and H35, with the exception of a dammed ditch/watercourses running through W2. By the end of April 2020, all ditches with the exception of that running through W2 were completely dry. Therefore the majority of these watercourses provide negligible opportunity for water vole or otter.

The watercourse running through W2 (identified partly as P1d given the backwater pond formed by dam) comprised heavily shaded ditch, with significant detritus and rubbish dumped within the watercourse. Shading limited bankside vegetation for feeding. No field signs of water vole or otter were recorded. In respect of other riparian associated mammals, droppings and footprints likely to be that of brown rat were recorded, and water shrew are understood to be prevalent in the local area.

Overall, based on the surveys undertaken, and the condition of habitats present, both water vole and otter are concluded to be likely absent from the Site.

APPENDIX 7.7:

BREEDING BIRDS SURVEY

Legislation

All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.

In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.

Consideration is also taken of Birds of Conservation Concern ('BoCC'). These are species which are declining or appear to be in need of concentrated conservation actions (Eaton et al, 2009). Certain criteria are used to place birds on a Red-list, Amber-list or Green-list and these are outlined in Table 1 below.

Table 1 Criteria for red, amber and green listed birds

Red listed	• Those that are globally threatened according to The World Conservation Union(IUCN) criteria; • Historical decline in breeding population and not shown substantial recent recovery those that have shown a severe breeding decline over 25 years/longer term; • Those that have shown a severe breeding range decline over 25 years/longer term; • Species whose non-breeding population has declined over 25 years/longer term.
Amber listed	• Species of European Conservation Concern; • Those whose population has declined historically but made a substantial recent recovery; • Those whose breeding population has declined moderately over 25 years /longer term; • Those that have shown a moderate breeding range decline over 25 years/longer term; • Those whose non-breeding population has declined moderately over 25 years/longer term; • Rare breeders; or non-breeding rarity species with internationally important or localised populations.
Green listed	• Species that fulfil none of the criteria above.

Methods

Breeding Bird Surveys

Breeding Bird surveys were undertaken in 2008 by Aspect Ecology and 2013 by FPCR. The results of these surveys have been collated, along with two further breeding bird surveys carried out by Jamie Dunning between March and April 2020.

Surveys in 2020 were conducted with the following aims:

- To determine the current potential for breeding species of birds across the survey area;
- To review the rarity status and conservation of each species found, including levels of national protection, National and Local BAP and Birds of Conservation Concern (BoCC);
- To review the likely breeding potential within the habitats present;
- To assess the impacts of the proposed developments with regards to the species/ likely species determined; and
- To recommend appropriate mitigation and protection measures where necessary.

Common Birds Census (CBC) uses registration mapping based on bird breeding behaviour, which allows the number and distribution of territories to be determined for each species. The survey area included all accessible areas of the Site, with references made to locations of identified species where possible. Surveyors followed an amended CBC protocol, which focuses on the identification and spatial mapping of priority species. Priority species are anything which qualifies under any of the factors listed below:

- Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
- Species listed under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act 2006;
- Red & Amber listed by the Birds of Conservation Concern 2015;
- Localised or highly specialised species regardless of inclusion above (i.e. Crossbill in coniferous woodland);
- Nationally or locally declining species regardless of inclusion above (i.e. Greenfinch);
- Colonial nests, or, roost Sites containing more than one individual of any species; or,
- Exceptional counts or aggregations of any species.

All other species/observations are considered secondary species and are tallied on a separate list.

On each survey visit in 2020 the following objectives were met:

- Identification of likely breeding species within the habitats present;
- Identification of all birds seen and heard; and
- Total numbers of birds, including juveniles recorded.

The importance of the breeding bird assemblage on-site was assessed using criteria outlined by Fuller (1980), see Table below.

Table 2 Assessment criteria for importance of breeding bird assemblage

Importance	Number of Breeding Bird Species
National	85+
Regional	70-84
County	50-69
Local	25-49

Two surveys were conducted in good weather conditions on 10 & 11 March and 06 & 06 April 2020. See Table 8.8.C for full weather data. All surveys were carried out in good conditions and avoided the dawn chorus and mid-day when avian activity is at its minimum.

Limitations

Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a Site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions, particularly snow cover.

The surveyor followed a method by which secondary species were only mapped where they were recorded engaging in some degree of breeding behaviour (i.e. holding territory, carrying nest material, or soliciting a potential mate). For this reason, low priority species, or those not engaged in breeding activity were omitted from recordings.

Surveys in 2020 included only the first part of the breeding season, and certain later breeding species as have been identified below, would not have been recorded during surveys. This has been taken account of in the 2020 survey results and is address through inclusion of 2008 and 2013 survey results in the assessment.

Results

Desktop Study

BMERC returned 363 records of 67 bird species from within the search area. Those of potential relevance to the Site, i.e. those associated with farmland, include skylark *Alauda arvensis*, meadow pipit *Anthus pratensis*, lapwing *Vaneilus vaneilus*, yellow wagtail *Motacilla flava* and linnet *Linna cannabina*.

Habitats at the Site provide a range of opportunities for farmland, woodland and garden bird species, although intensive cultivation is likely to limit somewhat the number of ground nesting birds breeding within arable areas.

Field surveys

Results of 2020 breeding bird survey results are presented on the Breeding Bird Summary Plan (Figure 7e, CSA/4859/116). The dates and weather conditions for 2020 breeding bird survey are provided in Table 3 below.

Table 3 Weather conditions during surveys

Date (2020)	Time		Temp (°C)	Wind (Beaufort Scale)	Cloud Cover (Oktas)	Rain	Visibility
	Start	End					
10/03	07:30	09:00	8	2	2	None	Good
11/03	07:30	08:50	12	1	2	None	Good
06/04	06:45	08:00	13	3	8	Light rain	Fair
07/04	07:00	08:30	14	1	1	None	Good

In 2020, a total of 39 bird species were recorded, of which 33 make use of the Site for breeding to some extent (as only those which exhibited some degree of breeding behavioural were recorded). This excludes fieldfare, redwing and meadow pipit, which are likely to be on passage, with grey heron breeding elsewhere and excluding feral pigeon and pheasant. Given the timing of surveys the absence of six later breeding species, recorded in previous years should not be ruled out, including garden warbler, sedge warbler, lesser whitethroat, whitethroat, swift and swallow.

Surveys in 2008 and 2013 confirmed an additional 19 species at the Site not recorded in 2020, with a total of 54 in 2008 and 49 in 2013. Of these, an additional 19 were likely to breed at the Site, with **a maximum 49 species breeding across all years.**

Those species of particular interest recorded to breed at the Site in any year comprise the following:

- Seven Red-Listed Birds of Conservation Concern: grey partridge, house sparrow, reed bunting, skylark, song thrush, starling and yellowhammer.
- Eight Amber-listed Birds of Conservation Concern: willow warbler, swift, swallow, stock dove, kestrel, dunnock and bullfinch
- Three species known to be declining, greenfinch, rook and little owl, although the latter is an introduced species
- One Schedule 1 species: red kite

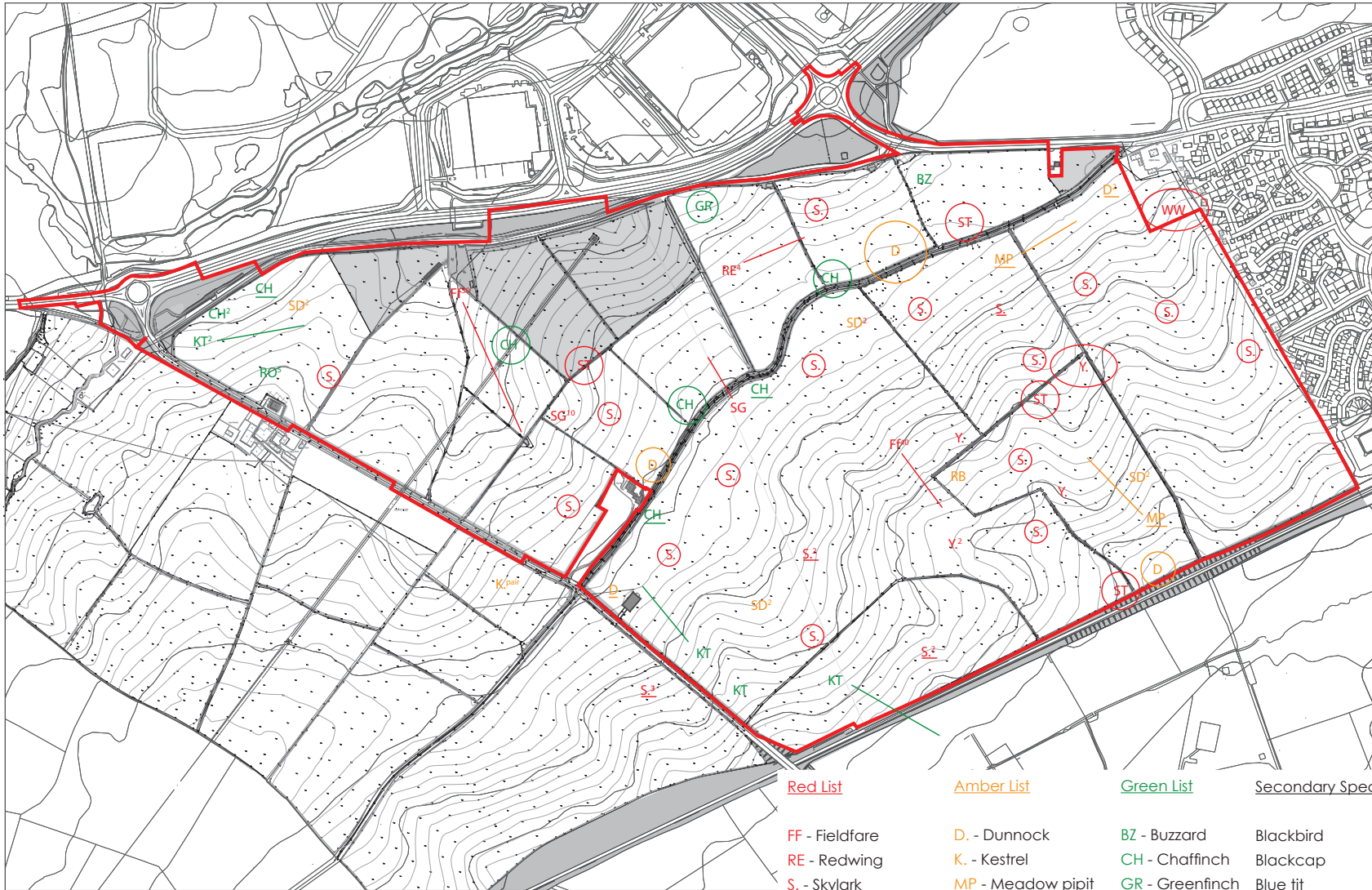
A summary of all bird species recorded at the Site between 2008 and 2020, and their likely breeding status at the Site are provided in Table 4 below.

Table 4 Bird Species Recorded at SWMK 2008 – 2020

Species	2008	2013	2020	Breeding (All Years)	Status
Black headed gull		x	x	n	Amber BoCC
Blackbird	x	x	x	y	
Blackcap	x	x	x	y	
Blue tit	x	x	x	y	
Bullfinch	x	x		y	Amber BoCC
Buzzard	x	x	x	y	
Carrion crow	x	x	x	y	
Chaffinch	x	x	x	y	Declining
Chiffchaff	x	x	x	y	
Coal tit	x	x		y	
Collard dove	x	x		y	
Cuckoo	x			n	Red BoCC
Curlew	x			n	Red BoCC
Dunnock	x	x	x	y	Amber BoCC
Feral pigeon	x		x	y	
Fieldfare			x	n	Red BoCC, Schedule 1
Garden warbler	x	x	n/a	y	
Goldcrest	x	x	x	y	
Goldfinch	x	x	x	y	
Great spotted woodpecker	x	x	x	y	
Great tit	x	x	x	y	

Green woodpecker	x	x		y	
Greenfinch	x	x	x	y	Declining
Grey Heron	x	x	x	n	
Grey partridge		x		y	Red BoCC
Greylag goose	x			n	Amber BoCC (non-feral)
House Sparrow	x	x		y	Red BoCC
Jackdaw	x	x	x	y	
Jay	x			y	
Kestrel	x	x	x	y	Amber BoCC
Lesser black-backed gull	x	x	x	n	Amber BoCC
Lesser whitethroat	x	x	n/a	y	
Linnet	x	x	x	y	Red BoCC
Little owl	x			y	Invasive, but declining
Long-tailed tit	x	x	x	y	
Magpie	x	x	x	y	
Meadow pipit	x	x	x	n	Amber BoCC
Moorhen	x			n	
Nuthatch		x		y	
Pheasant	x	x	x	y	
Pied wagtail	x		x	y	
Redwing			x	n	Red BoCC, Schedule 1
Red kite	x	x	x	y	Schedule 1
Reed bunting			x	y	Red BoCC
Robin	x	x	x	y	

Rook	x	x	x	y	Declining
Sedge Warbler	x		n/a	n	
Skylark	x	x	x	y	Red BoCC
Song Thrush	x	x	x	y	Red BoCC
Sparrowhawk	x			y	
Starling	x	x	x	y	Red BoCC
Stock dove	x	x	x	y	Amber BoCC
Swallow	x	x	n/a	y	Amber BoCC
Swift	x	x	n/a	y	Amber BoCC
Treecreeper	x	x		y	
Wheatear		x		n	
Whitethroat	x	x	n/a	y	
Willow warbler	x		x	y	Amber BoCC
Wood pigeon	x	x	x	y	
Wren	x	x	x	y	
Yellowhammer	x	x	x	y	Red BoCC
TOTAL	54	47	39 (45)	49	



- Site boundary
- Singing
- Calling
- Flight path/observed in flight
- Number of individuals
- Pair

Red List

FF - Fieldfare
RE - Redwing
S. - Skylark
ST - Song thrush
SG - Starling
WW - Willow warbler
Y. - Yellowhammer

Amber List

D. - Dunnock
K. - Kestrel
MP - Meadow pipit
RB - Reed bunting
SD - Stock dove

Green List

BZ - Buzzard
CH - Chaffinch
GR - Greenfinch
KT - Red kite
RO - Rook

Secondary Species List

Blackbird
Blackcap
Blue tit
Carrion crow
Chiffchaff
Common pheasant
Feral pigeon
Goldcrest
Goldfinch
GS woodpecker
Great tit
Grey heron
Long-tailed tit
Magpie
Robin
Wood pigeon
Wren



Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT
t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	South West Milton Keynes	Date	April 2020	Drawing No.	CSA/4857/128
Drawing Title	Figure 7e - Breeding Bird Survey Plan	Scale	NTS	Rev	-
Client	Taylor Wimpey UK Ltd, William David Ltd, Hallam Land Mangement Ltd, Bellcross Homes and Connolly Homes	Drawn	AC	Checked	JW

APPENDIX 7.8:

REPTILES SURVEY

Legislation

All native British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against killing and injury under parts of sub-section 9(1) of the Act. In addition, all native British reptile species are S41 priority species in England.

Methods

A total of 124 reptile refugia, comprising rectangles of roofing felt measuring 1.0 x 0.5m, were placed within areas of suitable habitat at the Site on 13 March 2020 by Carly Howes ACIEEM (see Figure 7f - Reptile Survey Plan CSA/4857/126). A total of 58 reptile refugia had previously been deployed at the Site in 2013. The locations of these refugia are also shown on Figure 7f - Reptile Survey Plan.

Following an initial 2-week 'bedding-in' period for refugia, surveys were carried out during favourable weather conditions (e.g. intermittent or hazy sunshine, not too windy, sunny spells following wet or cloudy weather).

Each survey visit comprised a slow walk of the Site to visually and physically check refugia for the presence of reptiles. On each occasion a watching brief was also maintained for any reptiles elsewhere on Site, whilst walking between refugia locations.

The primary aim of the reptile survey was to establish the presence or likely absence of widespread reptile species within the survey area, rather than to estimate abundance or population size. Seven survey checks are generally considered to constitute a reasonable survey effort with which to establish the presence/likely absence of reptiles at a site. Given the timing restrictions of the surveys, a total of three surveys were undertaken across the Site, over the total survey period.

Limitations

There were no limitations to the survey.

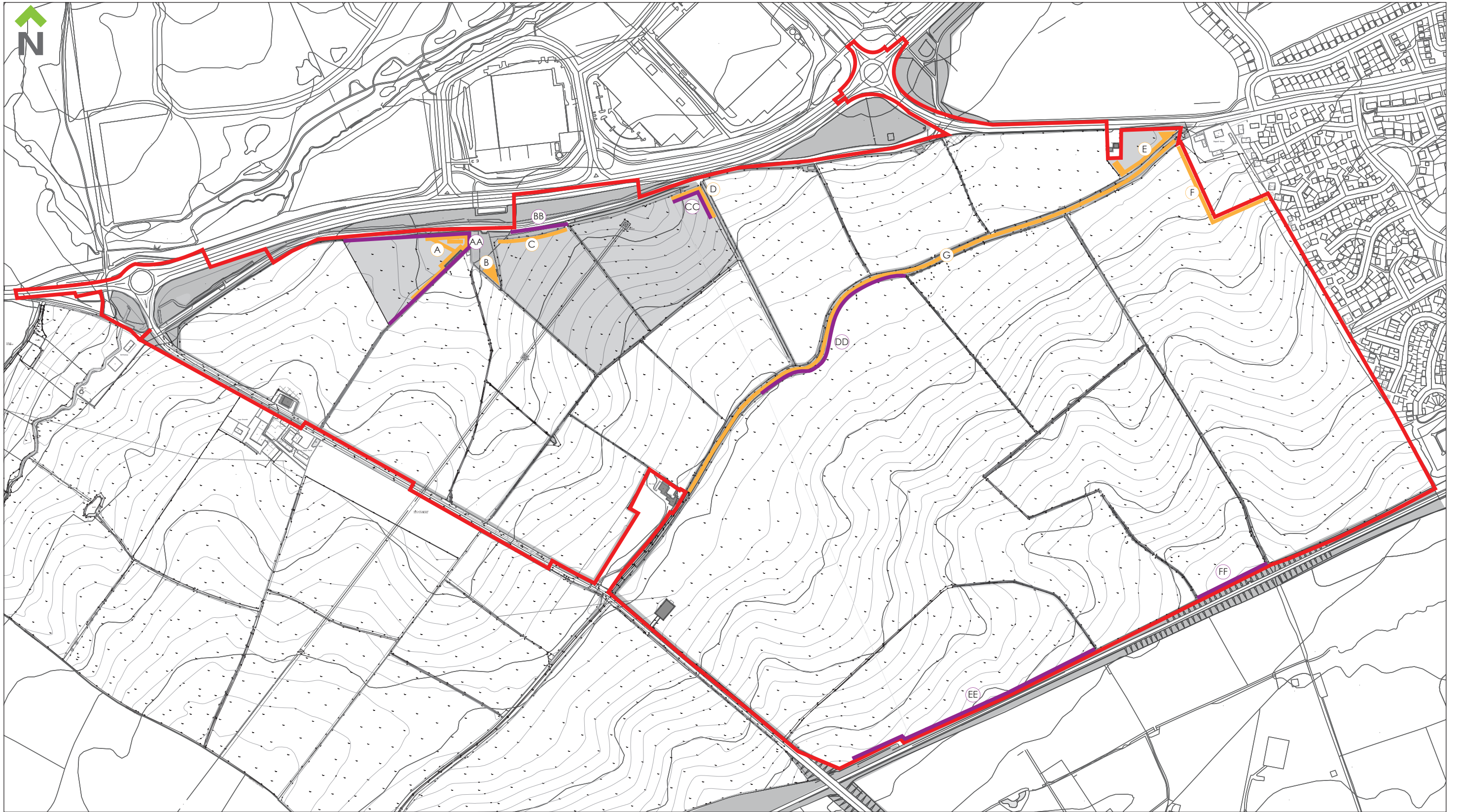
Results

The majority of the Site provides very limited opportunities for reptiles, being heavily managed/cultivated farmland. However, field margins, scrub habitats and hedgerows do provide a limited quantum of suitable habitat for widespread reptile species to forage, bask, seek refuge and hibernate.

During surveys undertaken in 2013, a single adult common lizard and a single adult grass snake were identified in the north of the Site and along Weasel Lane.

A single juvenile grass snake was identified on the first and third surveys undertaken in 2020, located in section E both times. On the second survey juvenile grass snakes were identified in sections A and E, with a single individual recorded in each location. Two common lizards were also identified on the third survey in section G and along the southern boundary of the Site.

See Table 1 for full results.



Site boundary

Area of reptile refugia with label (2020)

Area of reptile refugia with label (2013)

	2020							2013					
Area of reptile refugia:	A	B	C	D	E	F	G	AA	BB	CC	DD	EE	FF
Number of refugia:	23	8	7	6	15	10	55	12	6	5	11	14	10

0 50 100 150 200 250metres

CSA
environmental

Dixies Barns, High Street,
Ashwell, Hertfordshire SG7 5NT
t 01462 743647
e ashwell@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	South West Milton Keynes	Date	March 2020	Drawing No.	CSA/4857/126
Drawing Title	Figure 7f - Reptile Suvey Plan	Scale	Refer to scale	Rev	-
Client	Taylor Wimpey UK Ltd, William Davis Ltd, Hallam Land Management Ltd, Bellcross Homes and Connolly Homes	Drawn	CH	Checked	JW

Table 1 Reptile Survey Results

Job Name & No.	4857 South West Milton Keynes						Beaufort Scale: 0. Calm. Vertical smoke. 1. Light air. Smoke drifts. 2. Light breeze. Leaves rustle. 3. Gentle breeze. Small twigs constantly move. 4. Moderate breeze. Small branches begin to move. 5. Fresh breeze. Small trees in leaf begin to sway.					Precipitation, select from: Type: No Rain/Light/Moderate/Heavy Duration: Intermittent / Continuous														
Set-up Surveyor/ Project Manager	CH																									
Set-Up Date	13/03/2020 & April 2013																									
Date	Time	Surveyor	Weather				Area/ Field No	Slow worm <i>Anguis fragilis</i>					Common lizard <i>Zootoca vivipara</i>					Grass snake <i>Natrix natrix</i>					Other notes			
			Temp (°C)	Cloud Cover (Oktas; n/8)	Wind (Beaufort Scale)	Rain (type & duration)		Adult Male (>230mm)	Adult Female (>230mm)	Unidentified Adult	Sub-Adult	Newborn	Male	Female	Unidentified Adult	Sub-Adult	Newborn	Male	Female	Unidentified Adult	Sub-Adult	Newborn				
03/04/2020	10:00-12:00	JW	10-13	8	2	No rain	E												1							
07/04/2020	13:00-15:00	JW	16-18	0	0	No rain	A												1							
							E												1							
08/04/2020	11:00-13:00	JW	18-20	0	0	No rain	E												1							
							G							1									Western end of G.			
							NA								1									On southern boundary, outside of survey area.		
24/04/2013	AM	-	14	0	2	No rain	-																			
15/05/2013	PM	-	18	6	0	No rain	-																			
23/05/2013	AM	-	12	6	2	No rain	DD								1											
12/06/2013	AM	-	17	4	0	No rain	AA												1							
26/06/2013	PM	-	18	4	0	No rain	-																			
01/07/2013	AM	-	16	7	3	No rain	-																			
09/07/2013	PM	-	17	0	2	No rain	-																			
								Total Adult			Total Juvenile		Total Adult			Total Juvenile		Total Adult			Total Juvenile					
								0			0		3			0		1			4					

APPENDIX 7.9:

AMPHIBIANS SURVEY

APPENDIX 7.10:

BIODIVERSITY METRIC CALCULATION

APPENDIX 8.1:

**FLOOD RISK ASSESSMENT AND SURFACE WATER DRAINAGE
STRATEGY**

[PROVIDED IN SEPARATE DOCUMENT]

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APPENDIX 9.2:

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ARBORICULTURAL IMPACT ASSESSMENT

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LANDSCAPE AND VISUAL ASSESSMENT TABLES

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TRANSPORT ASSESSMENT

[PROVIDED IN SEPARATE DOCUMENT]

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APPENDIX 11.2:

IAQM CONSTRUCTION DUST ASSESSMENT METHODOLOGY

APPENDIX 11.3:

DISPERSION MODEL APPROACH AND VERIFICATION

APPENDIX 11.4:

SUMMARY OF OPERATIONAL TRAFFIC DATA USED IN THE ASSESSMENT

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SUMMARY OF BACKGROUND CONCENTRATIONS USED IN THE

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ATMOSPHERIC DISPERSION MODELLING RESULTS

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INTERPRETATIVE ENVIRONMENTAL DESK STUDY REPORT

[PROVIDED IN SEPARATE DOCUMENT]

APPENDIX 17.1:

UKCP USER INTERFACE (UKCP UI) TOOL

