



Keepmoat

Land West of Cheadle Rd., Upper Tean

Ecological Appraisal

January 2023

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1.0 EXECUTIVE SUMMARY

- 1.1 This report forms an ecological assessment of a c.3.6ha site west of Cheadle Rd. Upper Tean, Staffordshire. It has been commissioned by Keepmoat Homes who have submitted a planning application for a 67 unit residential development on the eastern half of the site, with the western half alongside the River Tean retained and managed sympathetically for biodiversity objectives.
- 1.2 The assessment has involved a desk study to search for existing baseline ecological information associated with the site and its immediate surroundings, and an extended habitat survey undertaken in July 2021. The objective of the survey was to determine the habitats that currently form the site. The survey was 'extended' to make an initial assessment of the presence of protected and/or notable species and assessment of the suitability of the habitats to support such species.
- 1.3 The assessment has concluded that the proposed development would be unlikely to have any adverse effect on any site afforded a statutory international or national nature conservation designation, nor would it have an adverse effect on any site afforded a non-statutory designation. The desk study did not reveal any existing records from within the past decade directly associated with the site but indicated the presence of a local bat population, a great crested newt population (nearly 500m from the site) and an assemblage of notable bird species in the wider landscape
- 1.4 The habitat survey determined that the eastern side of the site is formed by relatively species-poor neutral grassland. Hedgerows border Cheadle Road, Breach Lane, and an adjacent residential property. The western side is formed by a mosaic of habitats including wet woodland, tall ruderal herbs, neutral grassland, marsh/marshy grassland, and scrub. Evaluation of the habitats has concluded that the wet woodland and hedgerows represent priority habitats for conservation but are features that would be retained within the proposed development. Himalayan balsam is present in some abundance in the western half of the site; this is an invasive non-native species and legislation makes it an offence to cause this species to grow in the wild.
- 1.5 Surveys for protected species have included great crested newt, bats, reptiles otter and water vole. These have concluded that great crested newt, reptiles, otter and water vole are likely to be absent from the Site and not requiring mitigation measures. The bat surveys have identified potential roost features in fourteen trees within the Site but these will be unaffected by the proposals. A bat assemblage formed by common and widespread species, but dominated by common pipistrelle, uses the Site for foraging and commuting. Most of the activity was recorded in areas where existing habitats will be retained and enhanced. Potential impacts on this assemblage are therefore considered to be negligible, but potential degradation of retained habitats through light spill should be avoided by the adoption of a sympathetic lighting scheme. Enhancement for bats can be provided via a small artificial bat box scheme within retained habitats in the west side of the Site.
- 1.6 The proposed undeveloped area mostly falls within the River Tean floodplain. This area has remained unmanaged for some considerable time, and provides excellent opportunities for habitat enhancement and creation within the ecologically important setting of the Tean river corridor. The Illustrative Landscape Masterplan shows these concepts. Long-term sympathetic management of this area will provide gains for biodiversity.
- 1.7 The proposed development as outlined above, would appear to be compliant with relevant local planning policy, specifically Policy NE 1 Biodiversity and Geological Resources and Policy NE 2 Trees, Woodland and Hedgerows within the Staffordshire Moorlands Local Plan (adopted). The proposal would also deliver the requirements of the National Planning Policy Framework associated with biodiversity.

2.0 INTRODUCTION

- 2.1 FPCR Environment and Design Ltd. (FPCR) have been commissioned by Keepmoat Homes Ltd. (Keepmoat) to undertake a preliminary Ecological Appraisal of an area of land extending to c.3.6ha, located west of Cheadle Road, Upper Tean, Staffordshire. This land is hereafter referred to as the Site. The centroid OS Grid Reference is SK 00612 40409.
- 2.2 Outline planning permission (with conditions) for up to 67 dwellings was granted on 15th June 2016 but has subsequently expired as no Reserved Matter application was submitted within the timescales set by Condition 3 of the outline approval. The proposed development involved retention of most of the western half of the Site which would subsequently be managed sympathetically for biodiversity objectives.
- 2.3 Keepmoat have submitted a full application for residential development and commissioned FPCR to re-assess the ecological baseline to identify any potential ecological constraints to the proposal and the need for any additional or updated ecology surveys. This information was provided as a Preliminary Ecological Appraisal (PEA) which formed part of the planning application submission. The PEA identified the need for additional ecological surveys and reported that these were ongoing at the time of the planning submission. This report and its associated appendices update the PEA and includes the additional surveys.

3.0 METHODOLOGY

- 3.1 Appendix 1 provides more detail regarding the various legislation mentioned in this section.

Overview

- 3.2 The appraisal process has broadly followed that recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹. In summary, the key parts of that process have been:

- Gathering baseline ecological information;
- Evaluation of the baseline information; and
- Discussion of the results and subsequent conclusions and recommendations.

- 3.3 This has been achieved via:

- A desk study of existing ecological information relating to the Site and the local area;
- A review of the former outline planning permission; and
- An extended Phase 1 habitat survey to assess the habitats present and the potential for protected species to be present.

Desk Study

- 3.4 Ecological information was requested from Staffordshire Ecological Record (SER)².
- 3.5 In addition, the following resources were interrogated for additional information and context:
- Multi Agency Geographic Information for the Countryside (MAGIC) website³;
 - Colour 1:25,000 Ordnance Survey base maps⁴; and

- Aerial imagery from Bing Maps⁵ and historic aerial imagery via Google Earth⁶.
- 3.6 The geographical extent of the search area for biodiversity information was related to the significance of sites and species, and potential zones of influence which might arise from the proposed development. The following scales of search were considered appropriate:
- 10 km for sites of international importance that are Ramsar sites;
 - 10 km for sites of international importance that form part of the National Site Network^A (i.e., Special Area of Conservation (SAC) and Special Protection Area (SPA));
 - 2km around the Site boundary for sites of National or Regional Importance (e.g., Sites of Special Scientific Interest (SSSI));
 - 1km around the Site boundary for Local Nature Reserves (LNR), and non-statutory designated sites of County Importance; and
 - 1km around the Site for notable species records (e.g., species protected by legislation, 'Species of Principal Importance (SPI)' for the conservation of biodiversity as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006⁷ and other notable species).

Field Survey

Habitats

- 3.7 An Extended Phase 1 Habitat Survey was undertaken which involved classification of the broad habitat types present using the system published by the UK Joint Nature Conservation Committee⁸, but where considered appropriate, with additional information collected beyond that required to determine the Phase 1 Habitat type. The survey was also extended to assess the suitability of the habitats and other features to support protected and notable fauna species. This involved a systematic walk over the Site to classify the broad habitat types present and to identify the presence of any 'Habitats of Principal Importance' (HPI) for the conservation of biodiversity as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006⁷. This was undertaken on 7th and 18th July 2020 by N Law (Associate Ecologist).
- 3.8 Hedgerows associated with the Site were surveyed using the Hedgerow Evaluation and Grading System (HEGS)⁹. This method of assessment includes noting down the canopy species composition, associated ground flora and climbers, structure of the hedgerow including; height, width, and gaps, along with associated features such as the number and species of mature trees, banks, ditches, and grass verges. Each hedgerow is given a grade with suffixes '+' and '-' representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score, and denoting hedges of the greatest nature conservation priority) as shown in Table 1. Hedgerows graded 1 or 2 are considered a priority for nature conservation:

HEGS Grade	Ecological Value
Grade 1	High to very high
Grade 2	Moderately high to high

^A Following the UK withdrawal from the EU SACs and SPAs in the UK no longer form part of the EU's Natura 2000 ecological network. They now form the UK National Site Network (NSN) created by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which amended the Conservation of Habitats and Species Regulations 2017. However, in terms of hierarchical importance for nature conservation, the sites forming the NSN are considered to retain their international importance.

HEGS Grade	Ecological Value
Grade 3	Moderate
Grade 4	Low

- 3.9 Hedgerows were also assessed against the Wildlife and Landscape criteria contained within Statutory Instrument No: 1160 – The Hedgerow Regulations 1997¹⁰ to determine whether individual hedgerows qualified as an 'Important Hedgerow' under the Regulations. This was achieved using a methodology in accordance with both the Regulations and DEFRA guidance¹¹.

Species

General

- 3.10 During the extended Phase 1 Habitat Survey, observations, identification, and signs of any species protected under the following list of Acts and Regulations were noted:
- Part 1 of the Wildlife and Countryside Act 1981 (as amended)¹²;
 - The Protection of Badgers Act 1992¹³;
 - The Conservation of Habitats and Species Regulations 2017 (as amended)¹⁴; and
 - The NERC Act 2006 – S41 Species of Principal Importance (SPI) for the conservation of biodiversity⁷.

Great Crested Newt

- 3.11 Assessment for great crested newt involved a desk study to identify waterbodies within the Site or within 500m of the Site boundary.
- 3.12 Using the results of the desk survey, accessible waterbodies were assessed for their potential to support great crested newt (GCN).

Habitat Suitability Index

- 3.13 The single pond present within the Site was assessed for its potential to support great crested newts (GCN) *Triturus cristatus* using the Habitat Suitability Index (HSI)¹⁵ This provides a measure of the likely suitability that a waterbody has for supporting GCN. Generally, ponds with a higher score are more likely to support GCN than those with a lower score and there is a positive correlation between HSI scores and ponds with newts recorded. Ten separate attributes were assessed to calculate suitability to support GCN:
- Geographic location;
 - Pond area;
 - Pond drying;
 - Water quality;
 - Shade;
 - Presence of water-fowl;
 - Presence of fish;
 - Number of linked ponds;
 - Terrestrial habitat; and
 - Macrophyte coverage
- 3.14 A score was assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Pond suitability for GCN was then determined according to the categorical scales shown in Table 1 developed by Brady¹⁶.

Table 1: Great Crested Newt Habitat Suitability Index Score and Suitability

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Environmental DNA (eDNA) Survey

- 3.15 Environmental DNA sampling was undertaken on 15th June 2022 on one waterbody to determine the presence or likely absence of GCN in accordance with the guidance set out in the eDNA sampling Technical Note¹⁷. Water samples were collected from the off-site waterbody P3.
- 3.16 Sampling used kits obtained from ADAS Ltd. This involved taking samples of agitated water from twenty locations around each pond and mixing thoroughly. Fifteen ml of this was then placed into each of six sterile sample tubes containing preservative, precipitates and a DNA sequence used for degradation control. All samples were stored in accordance with ADAS protocols. The samples were then transported under suitable conditions to an ADAS laboratory for analysis. Results provided by the laboratory have one of three outcomes described in Table 2.

Table 2: Description of Possible Results of eDNA Analysis

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

Reptiles

- 3.17 A specific survey for reptiles was undertaken during 2022. Full details of the methodology are provided in Appendix B. In summary this involved setting out a total of 26 artificial refugia and after a period of several weeks these were checked for reptiles on seven survey occasions spanning the months of May-August.

Bats

- 3.18 Specific surveys for bats were undertaken during 2022. Full details are provided in Appendix C, and a summary is provided here.
- 3.19 The survey effort involved:
- Ground assessments of trees within the Site to search for Potential Roost Features;
 - Three seasonal (spring, summer and autumn) walked transect activity surveys; and
 - Three seasonal static detector activity surveys.

Riparian Mammals

- 3.20 This included two specific surveys for otter and water vole along a 300m stretch of the River Tean from the road bridge on Breach Lane, southwards. The first survey took place on 29th April 2022 and the second survey on 15th September 2022.

Water Vole

- 3.21 The surveys were guided by the methodologies outlined within the Water Vole Conservation Handbook (3rd ed, 2011)¹⁸, and the Water Vole Mitigation Handbook (2016)¹⁹.
- 3.22 Where possible the survey was conducted by walking within the channel of the watercourse, otherwise it was surveyed by walking along the bank and inspecting with binoculars. Evidence of signs to confirm presence was searched for especially on exposed natural berms, tree roots, and accumulated debris. This included:
- *Latrines* - distinct piles of water vole droppings found near nest sites, at the ranges of territorial boundaries and where the animals enter and leave the water;
 - *Burrows* - burrow entrances are typically wider than high with a diameter between 4-8cm. Generally, these burrow entrances are located at the water's edge;
 - *Feeding Stations* - areas with distinct neat piles of chewed lengths of vegetation along pathways or haul out platforms along the water's edge;
 - *Footprints* - identifiable prints in soft margins of the watercourse;
 - *Runways* - low tunnels that are pushed through the vegetation and often leading to burrows or feeding stations; and
- 3.23 *Nest Balls* – rugby sized ball of vegetation lay within a tuft of vegetation above the water line.

Otter

- 3.24 Signs of otter activity were searched for following the methodologies detailed within the New Rivers and Wildlife Handbook²⁰.
- 3.25 Potential signs include:
- *Spraints* – characteristic sweet-smelling, black tar-like (where fresh/relatively recent i.e. within a few weeks) or grey crumbly (when old) faecal deposits usually containing fish scales, bones and occasionally invertebrate exoskeleton and bird feathers;
 - *Footprints* – In good substrate typically asymmetrical and showing five toes arched around a large pad and, depending on substrate, webbing and claw marks. Poorer, generally coarser substrates do not often enable the identification of otter footprints.
- 3.26 Additional signs of otter presence may occur, although without additional evidence these signs are usually inconclusive proof of current otter presence:
- *Feeding remains* – Remains of fish and/or aquatic invertebrates;
 - *Slides/haul-outs* – Routes into and out of the water, which are usually associated with terrestrial routes such as short cuts around meanders or along traditionally, used otter paths/routes;
 - *Couches/hovers* – above ground resting place. Usually associated with cover such as dense scrub, rushes or reed, flood debris or fallen trees. Many couches are rarely used whilst others more so. Difficult to prove use without radio or camera tracking;

- 3.27 *Holts* – below ground resting site usually associated with sprainting. Sometimes used with greater frequency than couches and can be important for breeding (natal holts) where other signs are usually absent. Notoriously difficult to find or prove without radio or camera tracking.

4.0 RESULTS

Desk Study – Designated Sites

- 4.1 The location of the designated sites discussed below are shown on Figure 10300-E-01: Consultation Results Plan.

Sites with a statutory international nature conservation designation (i.e., Ramsar Sites) and sites on the National Sites Network (i.e., SPAs and SACs)

- 4.2 There are no sites afforded this designation within 10km of the Site.

Sites with a statutory national nature conservation designation

Sites of Special Scientific Interest

- 4.3 There are no Sites of Special Scientific Interest (SSSI) within 2km of the Site, the nearest is Dimmings Dale & The Ranger SSSI, located c.5km to the northeast of the Site.

SSSI, SAC, SPA & Ramsar sites Impact Risk Zones

- 4.4 The Site falls within an Impact Risk Zones (IRZ) for the above SSSI. At this location Natural England would expect the Local Planning Authority to consult them on any development proposal of the following type and scale:

- **Infrastructure:** Airports, helipads, and other aviation proposals; and
- **Air Pollution:** Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3,500t.

Local Nature Reserve

- 4.5 There are no LNR within 1km of the Site boundary. The nearest is Cecilly Brook LNR, located c.2.25km to the north, northeast of the Site.

Sites with a non-statutory local nature conservation designation

- 4.6 There are two sites afforded this type of designation within 1km of the Site boundary; Huntley Wood Local Wildlife Site (LWS) c.580m to the north, northwest, and Freehay LWS c.970m to the northeast.
- 4.7 Huntley Wood is ancient semi-natural woodland with a canopy dominated by birch and oak with some sycamore, rowan, and beech. The ground flora is indicative of acidic conditions with species such a bracken, ling and bilberry and the most recent monitoring check in 2005 noted that rhododendron remained abundant, and locally dominant in some areas.

- 4.8 Freehay is located on a south-facing slope and supports acidic habitats, with a dry heath acid grassland mosaic formed by bilberry, heather and wavy hair-grass on the higher slopes and birch woodland on the lower ground.

Desk Study – Protected and Notable Species

General

- 4.9 SER provided approximately 890 records for 132 protected and notable species from a search area extending 2km from the Site boundary. These have varying resolutions; some have 10-figure grid references locating the record to a specific 1m square, others have 8-figure grid references locating the record to a specific 10m square, others have a 6-figure grid reference locating them to a 100m square and others with 4-figure grid references locating them to 1km². Dates ranged from 1922 to 2019.
- 4.10 The appraisal process considered that records older than 10-years are unlikely to be of relevance for the objective of the appraisal. Consequently, the data was analysed to extract records made within the last decade and with a location within the 1km search area and then limited to the most recent record for a species at a specific location. This identified a sub-set of 29 records that met these criteria, and these are mapped on Figure 10300-E-01:
- 16 records for birds at a 1km resolution;
 - 3 records for common pipistrelle (1 at 1m resolution and 2 at 1km resolution);
 - 2 records for noctule bat (1 at 1m resolution and 1 at 100m resolution);
 - 1 record for 'bats' at 100m resolution;
 - 3 records for plants (2 for common cudweed at 10m resolution and 1 for bluebell at 1km resolution);
 - 2 records for mammals other than bats (1 for western European hedgehog at 10m resolution and 1 for polecat at 100m resolution);
 - 1 amphibian record (great crested newt) at 100m resolution; and
 - 1 invertebrate record (tree bumblebee) at 10m resolution.
- 4.11 Whilst two bat records from 2012 are mapped with a location within the Site, this is because they have a resolution of 100m and the mapping point for the 100m² from which the record occurs in is the southwest corner of the square. These records are associated with the residential development to the east of Cheadle Rd. which fall within the same square.
- 4.12 The records have identified an assemblage of notable birds within the wider landscape, but this would be anticipated. There is a recorded great crested newt population approximately 500m to the northeast and hedgehog (a Species of Principal Importance) has been recorded in a residential area on the edge of Upper Tean to the southeast of the Site. The records for notable plants, tree bumblebee and polecat are not considered to have any relevance to the proposed development.

Waterbodies

- 4.13 From the desk study eight potential waterbodies were identified within 500m of the Site boundary. These are shown on Figure 10300-E-01 and discussed further in this report in association with assessment for great crested newt.

Field Survey

Overview

- 4.14 The site is bounded to the north by Breach Lane, to the west by the River Tean, to the south by residential development and commercial/employment land, and to the east by Cheadle Road (A522). The land slopes westwards to the River Tean. Neutral grassland forms a significant proportion of the Site, with two clearly delineated fields alongside Cheadle Rd. and a less clearly defined parcel alongside Breach Lane. Between these parcels and the River Tean there is a mosaic of habitats formed by wet woodland, tall ruderal herbs, neutral grassland, marsh/marshy grassland, and scrub. These habitats and individual parcel references are shown on Figure 10300-E-02.

Neutral Grassland

- 4.15 The most southerly field parcel (Tn7) supports un-managed, rough tussocky grassland formed by abundant false oat-grass and cock's-foot with tall ruderal herbs and a small number of neutral grassland indicator species which occur rarely within the sward.



Species	Abundance
False Oat-grass	Abundant
Cock's-foot	Abundant
Hogweed	Frequent
Yorkshire-fog	Frequent
Meadow Foxtail	Occasional
Broad-leaved Dock	Occasional
Common Nettle	Occasional
Common Bent	Rare
Common Knapweed	Rare
Creeping Thistle	Rare
Meadow Vetchling	Rare
Ribwort Plantain	Rare
Meadow Buttercup	Rare
Common Sorrel	Rare
Bush Vetch	Rare

- 4.16 The adjacent field (Tn6) had been cut and cleared several weeks before the survey but was supporting sufficient regrowth to enable the species composition to be determined. This was also dominated by false oat-grass with cock's-foot frequent. An abundance of bare ground between cut clumps of these species indicated that prior to cutting this had a similar tussocky structure and had been left un-managed for some time. Similar to Tn7, the sward included forbs indicative of neutral grassland, but here the number was greater, but as with Tn7 most were rare within the stand.



Species	Abundance
False Oat-grass	Abundant
Meadow Foxtail	Frequent
Common Knapweed	Frequent
Cock's-foot	Frequent
Yorkshire-fog	Frequent
Common Nettle	Frequent
Yarrow	Locally frequent
Germander Speedwell	Locally frequent
Hogweed	Occasional
Meadow Vetchling	Occasional
Broad-leaved Dock	Occasional
Dandelion	Occasional
Common Bent	Rare
Common Mouse-ear	Rare
Creeping Thistle	Rare
Lady's Bedstraw	Rare
Common Bird's-foot-trefoil	Rare
Ribwort Plantain	Rare
Meadow Buttercup	Rare
Creeping Buttercup	Rare
Common Sorrel	Rare
Lesser Stitchwort	Rare
Tansy	Rare
Red Clover	Rare

- 4.17 The third field parcel (Tn3) was less clearly defined by boundary features and towards the west graded into other habitats. Like Tn7, this appeared to have been un-managed for many years and was dominated by false oat-grass. Similar to the other parcels, this supported several neutral grassland indicator forbs, but with common knapweed frequent.



Species	Abundance
False Oat-grass	Abundant
Common Knapweed	Frequent
Cock's-foot	Frequent
Cleavers	Frequent
Common Sorrel	Frequent
Rosebay Willowherb	Locally abundant
Yarrow	Locally frequent
Common Bent	Locally frequent
Common Couch	Locally frequent
Meadow Vetchling	Locally frequent
Ribwort Plantain	Locally frequent
Blackthorn	Locally frequent
Creeping Buttercup	Locally frequent
Common Nettle	Locally frequent
Meadow Foxtail	Occasional
Hogweed	Occasional
Lesser Stitchwort	Occasional
Dandelion	Occasional
Common Mouse-ear	Rare
Foxglove	Rare
Bush Vetch	Rare

- 4.18 Other areas of this species-poor false oat-grass grassland occur in the western part of the Site (Tn 20 & Tn 10) but here these pick up small elements of the adjacent marsh/marshy grassland into which they grade.
- 4.19 A slightly more species-rich area of neutral grassland with false oat-grass absent (Tn1) supported abundant sweet vernal-grass, common knapweed and greater bird's-foot-trefoil with frequent red fescue, common bent and ribwort plantain, with occasional common sorrel and some lesser stitchwort.

Marsh/Marshy Grassland

- 4.20 This occurs in three distinct areas. The most northern block (Tn8) is formed by abundant soft-rush, tufted hair-grass and greater bird's-foot-trefoil with locally abundant creeping buttercup frequent common marsh-bedstraw and a few marsh thistle plants.
- 4.21 South of this there is a more extensive area (Tn14) which supports a more diverse species composition with a notable abundance of meadowsweet and common valerian and elements of swamp habitat with locally frequent reed canary-grass.



- 4.22 Within this area, part of the adjacent woodland had been coppiced and pollarded to maintain clearance underneath the two sets of overhead power lines that run through the area.



- 4.23 The third area (Tn11) is formed by abundant soft-rush with frequent marsh thistle, occasional common marsh-bedstraw and small amounts of meadow foxtail, rough meadow-grass, tufted hair-grass and meadow vetchling.

Tn14 Species	Abundance
Meadowsweet	Abundant
Common Valerian	Abundant
Creeping Bent	Frequent
Common Marsh-bedstraw	Frequent
Himalayan Balsam	Frequent
Soft-rush	Frequent
Rough Meadow-grass	Frequent
Bramble	Locally abundant
Common Nettle	Locally abundant
Meadow Foxtail	Locally frequent
Great Willowherb	Locally frequent
Reed Canary-grass	Locally frequent
Creeping Buttercup	Locally frequent
American Willowherb	Occasional
Common Hemp-nettle	Occasional
Yorkshire-fog	Occasional
Meadow Vetchling	Occasional
Spearmint	Occasional
Marsh marigold	Rare
Floating Sweet-grass	Rare
Water Forget-me-not	Rare
Branched Bur-reed	Rare

Tall Ruderal Herbs

- 4.24 Small patches of tall ruderal herbs occur throughout the Site, but two larger areas are Tn16 formed by common nettle, Himalayan balsam, and docks, and Tn4 formed by abundant common nettle and bramble which combine to form a dense, impenetrable stand with small amounts of false oat-grass, cleavers, red campion, and hedge bindweed.

Semi-natural Broadleaved Woodland (Wet Woodland)

- 4.25 This forms a significant element of the habitats in the western part of the Site. The block located centrally within the Site (Tn 21) is formed by a canopy of mature alder with locally frequent elder forming a shrub layer, The field layer is dominated by Himalayan balsam.
- 4.26 To the southwest a more extensive area (Tn17) also has a canopy dominated by alder, but the shrub layer is very sparse and formed by small amounts of elder and holly. The field layer is slightly more diverse but still with an abundance of the non-native, invasive Himalayan balsam. Other elements include locally abundant reed canary-grass, frequent rough meadow-grass, docks, false oat-grass and occasional soft-rush. Small amounts of bittersweet and red campion were also noted.
- 4.27 In the northwest corner the final stand of woodland (TN19) has a more varied canopy composition with some ash and willow in addition to the frequent alder alongside the river.

Scrub

- 4.28 Scrub occurs variously across the site. The larger, more mappable areas include:

- A relatively large area (Tn19) of alder scrub alongside the river with a smaller area (Tn5) to the north;
- Hawthorn at Tn2 and Tn13,
- A linear strip of bramble, holly, hawthorn and elder (Tn15),
- Holly, hawthorn, and crab apple at Tn9; and
- Crab apple (Tn12).

Standing Open Water

- 4.29 A single waterbody (Tn22) was identified within the Site, this was the remnants of the old mill race that formed part of the water supply system for the former Croft Mill (a textile mill) located immediately to the south of the Site. This has presumably silted up over the years and is now formed by a narrow channel c.0.5m wide and with a water depth of c.75mm at the time of the survey. Most of the channel was hidden by the dense vegetation in the area, with open channel predominantly in the area where trees had been coppiced and pollarded beneath the power lines (see also the photograph in paragraph 4.22).



Hedgerows

- 4.30 Hedgerow H1 bordering Cheadle Road was formed by abundant hawthorn with frequent blackthorn and small amounts of elder and more rarely holly. Hedgerow H2 alongside Breach Lane was a little more diverse with abundant hazel and hawthorn, frequent elder and blackthorn and occasional holly (which included two holly trees). H2 sits on a relatively species-rich bank with three woodland species (bluebell, dog's mercury, and herb Robert) noted. H3, a garden boundary hedge, was formed by abundant holly (including a variegated hortal variety) and blackthorn, with small amounts of wild cherry and elder.
- 4.31 None of the hedgerows met the Hedgerow Regulations 1997 criteria of to be considered an 'Important' hedge. All three hedgerows were determined to have a HEGS score of 3, and therefore would be considered to be of just 'Moderate' ecological value. As the species composition and cover of each hedge was formed by at least one woody UK native species, they met the criteria to be considered Hedgerow Habitat of Principal Importance.

Invasive non-native species

- 4.32 Himalayan balsam occurs frequently in parts of the western side of the site. This is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This legislation makes it an offence to cause species on Schedule 9 to grow in the wild.

SpeciesGreat Crested Newt (GCN)

- 4.33 The desk study identified eight potential waterbodies within 500m of the Site boundary (including two within the Site). These are shown on Figure 10300-E-01.
- 4.34 Two (P6 and P7) were west of the Cheadle Road which was considered to be a major barrier to dispersal for GCN and they are on the 500m buffer boundary so would be scoped out for requiring further assessment. However, the desk study has identified that GCN were recorded in P6 in 2013 so there is a GCN population associated with that waterbody. Similarly, P8 is located on the west side of the River Tean, and the current within the river forms a barrier to dispersal for newts, so this waterbody is also scoped out.
- 4.35 Within the site P1 is formed by the old mill race. As noted above, only small sections of this were visible due to the dense vegetation, but in the visible areas, the water depth and imperceptible flow were considered to make it potentially be suitable to support GCN, but this assessment was subsequently revised during further survey work in 2022 when the flow was considered to make this feature unsuitable for GCN. P2 showing on OS maps is located in woodland but could not be located and is considered to no longer exist.
- 4.36 The remaining three waterbodies are off-site. P5 to the north is likely to form part of the old mill race but was potentially on private property so could not be accessed.
- 4.37 P3 to the south is the old mill pond and OS maps show a waterbody (P4) to the southeast of this abutting the Site boundary, although this feature cannot be seen on aerial imagery so may no longer exist. Both these ponds were subsequently visited on 15th June following establishment of ownership and securing permission to access the area. As anticipated, P4 no longer existed.
- 4.38 The HSI Assessment for P3 is set out in Table 3 below:

Table 3: HSI Assessment of the Off-site Waterbody P3

Suitability Index	On-site pond values	Comment	Calculated SI value
SI-1 (Geographical Location)	A		1
SI-2 (Pond Area)	150m ²	Estimated to the nearest 50m ²	0.3
SI-3 (Pond Drying)	Never	The vegetation recorded within the pond indicated that the pond clearly retained permanent water.	0.9
SI-4 (Water Quality)	Good	There was nothing to indicate that the water quality was less good.	1
SI-5 (Shade)	30%		1
SI-6 (Waterfowl)	Minor	No evidence of anything more than minor usage by waterfowl.	0.67
SI-7 (Fish)	Minor	Presence of a platform (possibly for fishing) although no specific sighting of fish, but suitable to support fish..	0.33
SI-8 (Ponds within 1km)	11	Determined from OS 1:10,000 mapping.	0.96

Suitability Index	On-site pond values	Comment	Calculated SI value
SI-9 (Terrestrial Habitat)	Moderate	The adjacent habitat included areas of inhospitable hard surfacing and built development	0.67
SI-10 Macrophytes	50%	Rich marginal/emergent vegetation	0.8
HSI Score			0.71
Predicted Presence			0.79
Pond Suitability to Support Great Crested Newt			Good



P3 eDNA Survey

- 4.39 As P3 was determined to have 'good' suitability to support GCN an eDNA survey was undertaken. This returned a negative result for the presence of GCN. The laboratory report is provided as Appendix A (Note: the report has the Client Identifier as Pond 1, this is an error, it should be Pond 3).

Riparian Mammals (Otter and Water Vole)

- 4.40 The current within the River Tean was considered possibly to be too fast to be suitable for water vole and no evidence of water vole was recorded during the surveys. In contrast, the remnant old mill race had very little flow and was surrounded by dense vegetation which would provide suitable foraging habitat for water vole, but did not provide suitable conditions for water vole to dig burrows. This part of the Site therefore provides partially suitable habitat for water vole, but no evidence of their presence was recorded during the surveys.

- 4.41 The river was surveyed from the Breach Lane bridge southwards for 300m. Access was good and along the stretch there were numerous features like exposed boulders and large exposed tree roots where otters if present would be likely to leave spraints. Silty margins where footprints would be left were more restricted. Good tree root systems exposed by erosion and the adjacent marsh/marshy grassland within the Site make this stretch of river very suitable for otter. However, no evidence of their presence was recorded during the surveys.

Incidental Records for Other Species

- 4.42 During the riparian mammal survey burrows were located in several places but these were considered to be rat burrows and field signs indicating the presence of rats were recorded. These included rat droppings, rat footprints and a dead rat.
- 4.43 A signal crayfish claw was recorded in one location during the April survey. This was in a heavily silted shallow area and signal crayfish burrows were noted nearby.

Reptiles

- 4.44 Appendix B provides the full results of the reptile survey. No reptiles were recorded and therefore they are considered likely to be absent from the Site.
- 4.45 A small number of common toad were recorded during the survey.

Bats

- 4.46 Full results of the bat surveys are provided in detail in Appendix C. A summary is provided here.
- 4.47 The ground assessment for Potential Roost Features (PRF) in trees identified fourteen trees with PRFs. One with 'high' potential to support roosting bats, five with 'moderate' potential and eight with 'low' potential.
- 4.48 The walked transect and static detector surveys recorded a bat assemblage using the Site, formed by eight species and species groups, all of which would be considered to be common and widespread species. The recorded contacts were dominated by common pipistrelle which formed over 90% of the recorded contacts.
- 4.49 Whilst activity was recorded around most of the area covered by the transect routes, the main areas were the unmanaged habitats formed by woodland, scrub, and grassland located on the west side of the Site.

Badger

- 4.50 No evidence of badgers was recorded during the initial survey or during the numerous visits to the Site during 2022 whilst undertaking other ecological surveys. Whilst all of the Site would provide suitable foraging habitat for badgers, there appeared to be a lack of suitable areas for them to dig setts.

5.0 DISCUSSION & RECOMMENDATIONS

Sites with Ecological Designations

Sites with a statutory international and/or national designation (SAC, SPA, SSSI and Ramsar site)

- 5.1 As there are no sites afforded this type of designation within 10km of the Site and the type and scale of development being proposed does not fall into any of the development categories associated with the Impact Risk Zone that the Site is located, it can be concluded that the proposals would not affect any site afforded these designations.

Local Nature Reserves

- 5.2 The nearest LNR is located c.2.25km from the Site. This is considered to be sufficiently distant for there to be no risk of direct or indirect adverse effects on the LNR as a result of the proposed development.

Sites with a non-statutory local nature conservation designation.

- 5.3 The two Local Wildlife Sites within 1km of the Site boundary are over 500m distant from the Site and at this distance the type of development proposed (residential) is unlikely to have a direct or indirect adverse effect on these sites.

Habitats

Neutral Grassland

- 5.4 The species composition of the neutral grassland within the Site is not indicative of the National Vegetation Classification (NVC) grassland communities that form the criteria that define Lowland Meadow Habitat of Principal Importance which form the selection criteria within the Staffordshire Local Wildlife Site selection guidelines.
- 5.5 Comparison between the recorded species and the LWS grassland selection guidelines show that there are insufficient indicator species present to meet the guidelines.

Marsh/Marshy Grassland

- 5.6 This is not a grassland type that forms one of the NVC communities that define grassland Habitats of Principal Importance. When assessed against the Staffordshire LWS grassland selection criteria, the grassland indicator species recorded and their abundance levels, result in a score of 10 points. The threshold for qualification as a LWS is 20, and for a Biodiversity Alert Site between 14 and 19. Therefore, although reasonably diverse, this habitat would not be considered to be of significant nature conservation interest.

Tall Ruderal Herbs

- 5.7 This is not a priority habitat type and is not of significant nature conservation interest.

Semi-natural Broadleaved Woodland (Wet Woodland)

- 5.8 The alder woodland within the Site is indicative of the NVC W6 *Alnus glutinosa* – *Urtica dioica* woodland, which is a Habitat of Principal Importance and therefore a priority for conservation. This woodland is located in the western side of the Site where built development is not proposed.

Scrub

- 5.9 The areas of scrub are typical of blocks of scrub that are ubiquitous in the wider landscape and are therefore not of any significant nature conservation importance.

Standing Open Water

- 5.10 The old mill race is not representative of a Habitat of Principal Importance and its potential importance for nature conservation would be more related to species than its importance as a habitat.

Invasive non-native species

- 5.11 Himalayan balsam was not noted within the proposed development area on the east side of the Site. Therefore, the presence of this Schedule 9 species will be more of an issue in terms of the proposed future management of the western side of the Site. Although control of this species is theoretically relatively easy because it is an annual and can therefore be destroyed by cutting or pulling before it sheds seed. However, in the riparian habitat there is a constant supply of seed brought down by the water and effective control is only achievable if undertaken on a catchment basis, with control starting at the headwater and then working downstream.

Species**Great Crested Newt**

- 5.12 Based on the survey results it is concluded that GCN are likely to be absent from the Site and therefore no mitigation measures are required.

Riparian Mammals (Otter and Water Vole)

- 5.13 No evidence of otter was recorded during the surveys, and the desk study did not reveal the presence of this species in the nearby wider landscape, so it is concluded that otter are currently likely to be absent from this section of the River Tean and adjacent riparian corridor. However, the River Tean and the adjacent habitats in the western side of the site do provide very suitable conditions for this protected, and highly mobile species. As the proposal is to retain and sympathetically manage this western part of the Site there would be no impact on otters if they subsequently moved into the area, and there would be no negative change in the extent of suitable habitat for them.
- 5.14 No evidence of water vole was recorded during the surveys. The fast flow of the River Tean makes this mostly unsuitable for water vole and the remnant mill race lacks suitable banks for burrow construction. Some water vole populations have been recorded as 'terrestrial' populations, not using burrows but above ground nests. However, no evidence of the presence of water vole were recorded and they are considered likely to be absent from the Site.

Reptiles

- 5.15 The western part of the Site and the proximity of the mill pond to the south form suitable conditions for grass snake but no reptiles were recorded during the survey. As this western part of the Site will remain undeveloped and will be managed sympathetically suitable habitat will be retained for this mobile species should grass snake move into the area. .

Bats

- 5.16 The survey has not identified any bat roosts, but there are 14 trees present that have Potential Roost Features. These are all located in areas where built development is not proposed so no impacts are anticipated. However, if this changes (e.g. the need for arboricultural works for safety reasons), the recommendations provided in Table C4 in Appendix C should be followed. Retention of these trees will also mean that there will be no loss of potential roosting opportunities for bats.
- 5.17 Overall, the surveys have recorded levels of bat activity that are not considered exceptional, given the numbers of bats recorded during both static and transect surveys across the area.
- 5.18 Based on the results of the desk study, the species composition recorded would seem to be typical of the local area with common pipistrelle the most frequently recorded species then occasional records for other species. All the recorded species represent common and widespread species.
- 5.19 The main areas of activity are within the land to the west where built development is not proposed and where opportunities for sympathetic management of the retained habitats have the potential to enhance these areas for the local bat assemblage.
- 5.20 It is considered that loss of foraging and commuting habitat will be minimal and unlikely to have anything more than a minor negative impact on the recorded local bat assemblage. Connectivity will be maintained, particularly along the important the river corridor.
- 5.21 The bat survey report has highlighted how some species of bat can be adversely affected by artificial lighting and how the value to bats of the retained habitats could be reduced by the development lighting scheme. Consequently, it is recommended that this potential impact should be mitigated by the adoption of a sensitive lighting scheme whose design has been guided by the principles outlined within the Institute of Lighting Professionals and Bat Conservation Trust 'Guidance Note 08/18 Bats and artificial lighting in the UK' ^{Error! Bookmark not defined.}.
- 5.22 The bat survey report has highlighted how enhancement for the recorded bat assemblage could be achieved by the provision of a small scheme of artificial bat boxes located within the retained habitats on the western side of the Site.

Badger

- 5.23 Whilst there is currently no evidence of badger utilising the Site, this is a highly mobile species, and this situation could change at any time. It is therefore recommended that prior to any approved development commencing, an update survey should be undertaken. .

Common Toad

- 5.24 A small number of common toad were recorded during the reptile survey. Common toad are a Species of Principal Importance for biodiversity conservation. As most of the suitable habitat within the Site is in the area to the west which will remain undeveloped, it is not considered that the proposal would have a significant impact on this species.

Planning Policy

Biodiversity Nett Gain

- 5.25 Reflecting the recommendations within the NPPF, Part 5 of Policy NE 1 within the Staffordshire Moorlands Local Plan²¹ expects developments to try and deliver a net gain in biodiversity. As noted earlier within this report, a significant area on the western side of the Site that falls within the River Tean floodplain and will remain undeveloped. This is currently un-managed, and has been so for some considerable time. Consequently, this area provides good opportunities to restore un-managed habitats of importance, and to potentially create new habitats sympathetic to its setting within the River Tean corridor. These opportunities were highlighted in the lapsed outline approval, but have been carried forward with the current application, as shown on the Illustrative Landscape Masterplan (Pegasus – Drawing Ref: P21-1771_06). The proposed long-term, sympathetic management of this western area will ensure delivery of net gains for biodiversity.

Alignment with planning policy.

National Planning Policy Framework

- 5.26 As the proposal will not have an adverse effect on any site afforded a statutory or non-statutory nature conservation designation and will likely deliver a net gain for biodiversity, it would appear to be aligned with the biodiversity requirements of the NPPF.

Staffordshire Moorlands District Council Planning Policy

- 5.27 Similarly, as there will be no adverse effect on any site afforded a statutory or non-statutory nature conservation designation and the proposal will seek to deliver a net gain in biodiversity, there would be alignment with parts 1 to 5 of Policy NE 1. The proposed habitat creation and subsequent sympathetic management of the west side of the Site aligns with parts 6 to 8 and 10 of NE1. Part 9 is not relevant.
- 5.28 The proposal involves retention of the existing woodland and, with the exception of a small loss for access, the hedgerows. This aligns with the requirements of Policy NE 2 (see Appendix 1) which seeks to ensure retention of such features.

6.0 APPENDIX 1- RELEVANT LEGISLATION AND PLANNING POLICY

Legislation

- 6.1 Relevant legislation includes the following:
- The Environment Act 2021²²
 - The Conservation of Habitats & Species Regulations 2017 (as amended)²³;
 - Council²⁴ Directive 92/43/EEC²⁵ (The Habitats Directive) as translated into UK law by The Conservation of Habitat and Species Regulations 2017 (as amended);
 - Directive 2009/147/EC on the conservation of wild birds (codified version)²⁶ (The Birds Directive) as translated into UK law by The Conservation of Habitats and Species Regulations 2017 (as amended);

- Wildlife and Countryside Act 1981 (as amended) (WCA)²⁷;
- Countryside and Rights of Way Act 2000²⁸;
- Natural Environment and Rural Communities Act 2006 (NERC)²⁹;
- The Protection of Badgers Act 1992³⁰; and
- The Hedgerow Regulations 1997³¹.

Conservation of Habitats & Species Regulations 2017 (as amended)

- 6.2 The Conservation of Habitats & Species Regulations 2017 (as amended), including as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019)³². The purpose of this legislation is to provide protection for natural habitats and wild flora and fauna of international importance.
- 6.3 The '2019 Regulations' have amended the '2017 Regulations' which transpose Council Directive 92/43/EEC of May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive) to make them operable since 1 January 2021 when the UK left the European Union. The 2017 Regulations as amended by the 2019 Regulations are referred to hereafter as 'The Regulations'.
- 6.4 Under Regulation 43 of the Regulations, it is illegal to:
- Deliberately capture, injure, or kill any wild animal of an EPS;
 - Deliberately disturb wild animals of an EPS (affecting ability to survive, breed or rear young) – disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young;
 - Deliberately disturb wild animals of an EPS (impairing ability to migrate or hibernate) – disturbance of animals includes in particular any disturbance which is likely to impair their ability in the case of hibernating or migratory species to hibernate or migrate;
 - Deliberately disturb wild animals of an EPS (affecting local distribution and abundance) – disturbance of animals includes in particular any disturbance which is likely to significantly affect the local distribution or abundance of the species to which they belong;
 - Deliberately disturb wild animals of an EPS (whilst occupying a structure or place used for shelter or protection) – intentionally or recklessly disturb any wild animal while it is occupying a structure or place which it uses for shelter or protection; and
 - Damage or destroy a breeding site or resting place an EPS.

The Wildlife and Countryside Act 1981 (as amended)

- 6.5 The Wildlife and Countryside Act 1981 (as amended) provides special protection of certain species. Under Part 1 Sections 1(1) and 1(2), all British bird species, their nests, and eggs (excluding some pest and game species) are protected from intentional killing, injury, or damage. Under Sections 1(4) and 1(5), special penalties are applied to bird species included in Schedule 1 of the Act, and protection is extended for these species to disturbance whilst building, in or near a nest and disturbance to dependent young.
- 6.6 Section 9 provides special protection for animal species other than birds that are listed on Schedule 5, and this includes via Section 9(4) protection against damage to “any structure or place which

any wild animal (included in the schedule) uses for shelter and protection”²⁷, and against disturbance whilst in such places. The Countryside and Rights of Way Act 2000 (CROW Act)²⁸ amends Section 1(5) of the Wildlife and Countryside Act 1981 by introducing a new offence of ‘reckless’ disturbance to protected wildlife and making certain offences punishable by imprisonment.

- 6.7 Invasive species are covered under Section 14 of the Act, and Section 14(2) makes it illegal to cause to grow in the wild any plant listed in Part II of Schedule 9.
- 6.8 Part 2 of the Act provides protection for areas of the countryside recognised for their nature conservation or geological value, including Sites of Special Scientific Interest (SSSIs) and National Parks.

Natural Environment and Rural Communities Act 2006

- 6.9 The NERC Act provides protection for habitats or species that are considered to be of principal importance for the purpose of conserving biodiversity (referred to here as; Habitats of Principal Importance (HoPI) and Species of Principal Importance (SoPI)). The legislation requires public authorities, including local planning authorities, to conserve biodiversity when exercising their functions. A list of habitats/species of principal importance, based on the former UK Biodiversity Action Plan (BAP) lists of priority habitats and species, have been produced by the Secretary of State in consultation with Natural England.

The Protection of Badgers Act 1992

- 6.10 The Protection of Badgers Act 1992 provides protection to badgers and their setts. This legislation is primarily concerned with animal welfare issues and the need to protect badgers from activities such as baiting and deliberate harm. The Act makes it an offence to:
 - Wilfully kill, injure, take, possess, or cruelly ill-treat a badger, or attempt to do so; and
 - To interfere with a sett intentionally or recklessly (this includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

The Hedgerow Regulations 1997

- 6.11 The Hedgerow Regulations 1997 provide protection for important hedgerows in the countryside by controlling their removal through a system of notification and by providing criteria to determine whether individual hedges are ‘important’. The criteria are formed by two parts: ‘Archaeology and history’ and ‘Wildlife and Landscape’.

Emerging Legislation

Environment Bill

- 6.12 The Environment Act 2021 gained Royal Assent and became law on 9th November 2021. This is wide-reaching legislation with the objective to protect the natural environment. For development proposals a key element of the Act is a mandatory requirement for developments to provide a measurable minimum 10% biodiversity net gain. However, at the time of writing, this requirement has no legal effect and will require secondary legislation to be passed to bring this into force.
- 6.13 In response to comments received during a ten-week public consultation on ‘biodiversity net gain,’ the Government had proposed a two-year transition period from when ‘net gain’ is mandated³³ and

with this required secondary legislation not imminent, it is anticipated that providing a 10% net gain will not become a legal requirement until 2023 at the earliest. This reflects the fact that local authorities and other stakeholders will need time to establish the systems and protocols required to administer biodiversity offsetting within their areas. This will include things like the development of strategic areas for habitat creation, which will form the basis of Local Nature Recovery Strategies (LNRS) which the Act requires to be created.

- 6.14 Therefore, unless there is a specific requirement within relevant local planning policy for development to provide a measurable biodiversity net gain this is will not be a legal requirement until the required secondary legislation has been passed to mandate a 10% biodiversity net gain..

Planning Policy

National Planning Policy

- 6.15 The National Planning Policy Framework (NPPF)³⁴ sets out the Government's planning policies for England and how these are expected to be applied. Embedded within the NPPF is a '*presumption in favour of sustainable development*'. The NPPF considers that to achieve this, the planning system has three overarching objectives: economic, social, and environmental. It considers these to be inter-dependent with a need for them to be mutually supportive of one another. For specific development proposals the NPPF considers applying a presumption in favour of sustainable development means:

"...c) approving development proposals that accord with an up to date development plan without delay..." [para.11].

"They [decision makers] should use the full range of planning tools available, including brownfield registers and permission in principle, and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area". [para. 38].

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

...d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..." [para. 180].

- 6.16 In terms of 'environmental objectives' (one of the three core planning objectives), the NPPF states that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*

e) *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*

f) *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate*". [para 174].

Local Planning Policy

- 6.17 The Staffordshire Moorlands Local Plan, adopted on 9th September 2020 "...sets out the development strategy, strategic and development management policies and land designations for the District.". Policy NE 1 Biodiversity and Geological Resources and Policy NE 2 Trees, Woodland and Hedgerows represent the two key local planning policies concerned with biodiversity matters.

Policy NE 1: Biodiversity and Geological Resources

The biodiversity and geological resources of the District and neighbouring areas will be conserved and enhanced by positive management and strict control of development (and having regard to relevant ecological evidence) by:

1. *By ensuring all development schemes have regard to the surveys and actions recommended by the Council's Extended Phase 1 Habitat Surveys and Local Wildlife Assessment and include measures for protection and enhancement of site biodiversity and protection of any geodiversity as appropriate.*

2. *Resisting any proposed development that could have an adverse effect on the integrity of an International site (or successor designation) alone or in combination with other plans or projects unless it can be demonstrated that the legislative provisions to protect such sites can be fully met. Any development with a potential to adversely affect a European site/s through construction activities should ensure that Ciria construction guidelines are followed including environmental good practice on control of dust and water pollution.*

3. *The Council will not normally permit any development proposal which would directly or indirectly (either individually or in combination with other developments) have an adverse effect on a Site of Special Scientific Interest. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest.*

4. *Conserving, and enhancing regional and locally designated sites. The Council will not permit any development proposal which would directly or indirectly result in significant harm to geological and biodiversity conservation interests, unless it can be demonstrated that:*

a) *there is no appropriate alternative site available; and*

b) *all statutory and regulatory requirements relating to any such proposal have been satisfied; and*

c) appropriate conservation and mitigation measures are provided; or if it is demonstrated that this is not possible

d) the need for, and benefit of, the development is demonstrated to clearly outweigh the need to safeguard the intrinsic nature conservation value of the site and compensatory measures are implemented.

5. Expecting all development where possible seeks to deliver a net gain in biodiversity proportionate to the size and scale of the development. In circumstances where adverse impacts are demonstrated to be unavoidable, developers will be required to ensure that impacts are appropriately mitigated, with suitable compensation measures towards loss of habitat used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be appropriately scheduled and managed according to the nature, size and scale of the development so as to minimise impacts that may disturb protected or important habitats and species.

6. Supporting opportunities to improve site management and increase public access to wildlife sites including supporting the objectives of the Staffordshire County Council Rights of Way Improvement Plan.

7. Ensuring development promotes the appropriate maintenance, enhancement, restoration and/or re-creation of biodiversity through its proposed nature, scale, location and design. The Staffordshire Moorlands Biodiversity Opportunity Map, in conjunction with the Staffordshire Biodiversity Action Plan, will be used to guide biodiversity enhancement measures to be included in development proposals as appropriate to the nature and scale of development proposed and other environmental interest, in particular supporting opportunities to increase grassland and heathland habitats including supporting targets in the UK and Staffordshire Biodiversity Action Plan.

8. Protecting and enhancing habitats and species of principal importance for the conservation of biodiversity as identified in legislation, and recognising and implementing appropriate measures, including landscape-scale conservation management, to take account of the fact that the distribution of habitats and species will be affected by climate change.

9. Recognising the value of the natural environment for sport and leisure activities and the need to manage such activities to ensure there is no conflict.

10. Ensuring the provision and protection of green infrastructure networks in line with Policy C 3.

Policy NE 2: Trees, Woodland and Hedgerows

The Council will protect existing trees, woodlands and hedgerows, in particular, ancient woodland, veteran trees and ancient or species-rich hedgerows from loss or deterioration.

This will be achieved by:

- Requiring that existing woodlands, healthy trees and hedgerows are retained and integrated within a proposed development unless the need for, and benefits of, the development clearly outweigh their loss;*
- Requiring new developments to provide tree cover that secures a good level of sustainability through tree retention, planting and soft landscaping, including where possible the on site replacement of any trees that are removed with sufficient tree planting*

to replace or increase the canopy cover on-site as appropriate. Landscaping schemes will also be required to mitigate against negative landscape impact and complement the design of new development and make provision for future maintenance. Where it is not possible to secure this new or replacement tree planting within the site, the Council will work with applicants to ascertain if a suitable site(s) can be found off-site for replacement planting in the locality;

- Resisting development that would directly or indirectly damage existing ancient woodland, veteran trees and ancient or species-rich hedgerows.

The Council will refer to its adopted Tree Strategy in the consideration of proposals; and will in general seek to retain as many trees and as much hedgerow on site as possible.

7.0 APPENDIX 2 REFERENCES

- ¹ CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal – Second Edition – December 2017*. Winchester: CIEEM. <https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf>.
- ² SER is the Ecological Records Centre for Staffordshire and incorporates the Staffordshire Biological Records Centre and Geological Records Centre.
- ³ [Online]. <http://magic.defra.gov.uk/>
- ⁴ [Online]. <https://www.ordnancesurvey.co.uk/osmaps/>
- ⁵ [Online]. <https://www.bing.com/mapspreview>.
- ⁶ Application available online at: http://www.google.co.uk/intl/en_uk/earth/
- ⁷ Her Majesty's Stationary Office (HMSO). 2006. The Natural Environment and Rural Communities Act 2006. Available from: <http://www.legislation.gov.uk/ukpga/2006/16/contents>
- ⁸ JNCC. (1990). *Handbook for Phase 1 habitat survey – a technique for environmental audit*. Peterborough: JNCC
- ⁹ Clements, D. & Toft, R. (1992). *Hedgerow Evaluation and Grading System (HEGS) – a methodology for the ecological survey, evaluation and grading of hedgerows*. Countryside Planning and Management
- ¹⁰ *The Hedgerow Regulations 1997 – Statutory Instrument 1997 No. 1160*. [Online]. London: HMSO. Available at: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made>.
- ¹¹ DEFRA. (1997). *The Hedgerow Regulations 1997. A Guide to the Law and Good Practice*. London: HMSO
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Sample ID: ADAS-5470 Condition on Receipt: Good Volume: Passed
Client Identifier: Pond 1, Cheadle Road, 10300 Description: pond water samples in preservative
Date of Receipt: 17/06/2022 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	22/06/2022
Degradation Control [§]	Within Limits	Real Time PCR	22/06/2022
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	22/06/2022
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN

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

Signed: Signed:

Position: Director: Biotechnology Position: MD: Biotechnology

Date of preparation: 24/06/2022 Date of issue: 24/06/2022

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

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

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

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

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

Appendix 1: Interpretation of results

Sample Condition

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

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

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

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

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

What do my results mean?

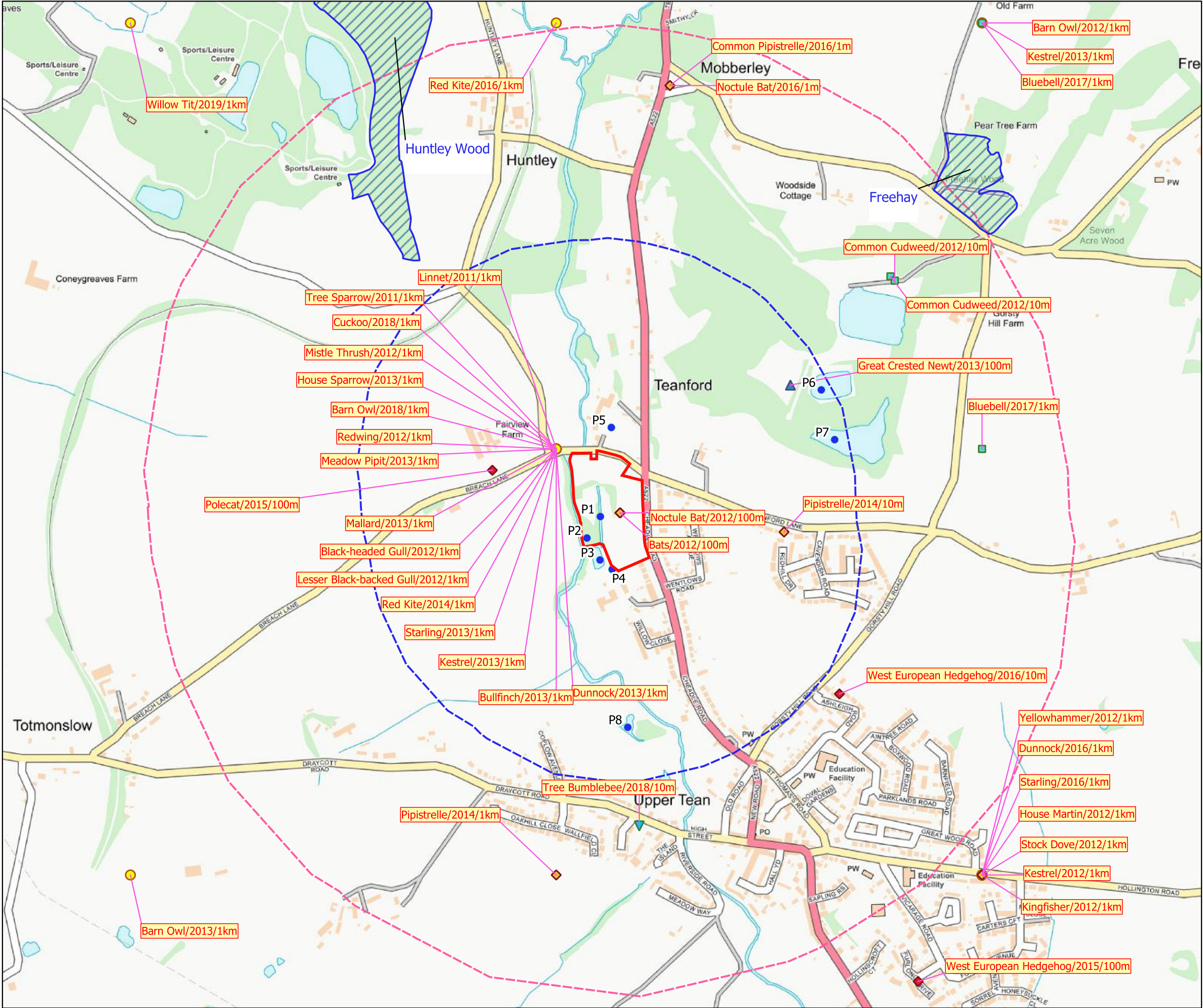
A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

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

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

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

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



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Key

- Site Boundary
- 1km radius from Site boundary
- 500 m radius from Site boundary
- Local Wildlife Site
- Ponds (actual and potential)

Protected & Priority Species (Name/Year/Record Precision)

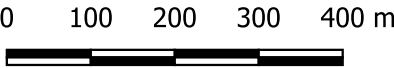
- amphibian
- bird
- flowering plant
- insect - hymenopteran
- mammal
- mammal - bat

Local Wildlife Site and species data supplied by Staffordshire Ecological Record

-	19.07.21	initial draft	NJL/NJL
rev	date	comment	drm/chk

client
Keepmoat
project
Cheadle Rd,
Upper Tean
drawing title
CONSULTATION RESULTS PLAN

drawing / figure number
10300-E-01
rev
print date
21/7/2021





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Key

 Site Boundary

Habitats

 Scrub: Scattered

 Other Tall Herb and Fen - Tall Ruderal

 Scrub: Dense/continuous

 Marsh/marshy grassland

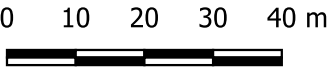
 Neutral Grassland

 Woodland: Broad-leaved - Semi-natural

 Standing Open Water

 Hedge

B	03.05.21	Missing hedgerows added	NJL/NJL
A	30.07.21	Mill race added	NJL/NJL
-	21.07.21	initial draft	NJL/NJL
rev	date	comment	drn/chk





client

Keepmoat

project

Cheadle Rd,
Upper Tean

drawing title

HABITAT PLAN

N



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