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## **Ecological Impact Assessment for proposed new prison on land adjacent to HMP Gartree, Gallow Field Road, Market Harborough, Leicestershire**

CGO Ecology Ltd  
Christchurch

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# Executive summary

## Introduction

CGO Ecology Ltd (CGO) was instructed by Mace Ltd, on behalf of the Ministry of Justice (MoJ), to conduct an Ecological Impact Assessment (EclA) on land adjacent to Her Majesty's Prison (HMP) Gartree, Gallow Field Rd, Market Harborough, Leicestershire, LE16 7RP (centred on OS grid ref SP 7052 8873). The MoJ proposes a new category B resettlement prison as part of its New Prisons Programme (NPP). The Local Planning Authority (LPA) is Harborough District Council.

The EclA aims to evaluate the ecological evidence gathered, identify important ecological features, potential impacts, mitigation, compensation, residual impacts, and enhancements. The MoJ aspires to achieving at least 10% Biodiversity Net Gain (BNG) on its new prisons, and 'Excellent' or 'Outstanding' BREEAM rating.

## Methodology

A Preliminary Ecological Appraisal (PEA) by Ramboll in 2020 included a Phase 1 habitat survey and recommendations for phase 2 ecological surveys. Ramboll also conducted a badger sett survey. In 2021, CGO conducted phase 2 surveys for bat roosts (18 surveys on 3 buildings, 4 trees) and activity (monthly transects and static detectors, April-October, ongoing), badger setts and activity (bait-marking, 21 days in April), reptiles (7 visits in April-May), great crested newt (GCN, 4 ponds, up to 6 visits each, April-May), Invasive Non-Native Species (INNS, 2 visits, April, July), and an updated Phase 1 habitat survey (July). BNG calculations were also made using the new Biodiversity Metric 3.0.

## Baseline conditions

The site is largely poor semi-improved grassland, with hardstanding from a WWII airfield, a small farm building complex, and small areas of woodland, scrub, ruderal, ditches, hedgerows, and other habitats. No bat roosts are present in the Zone of Influence (ZoI), but five species forage and/or commute over the site. A large badger clan occupies six setts on site, including two extensive main setts. Hedgehog is likely to be present. Barn owl roosts are confined to the north side of Welland Avenue, and no foraging was observed over the development site. Low numbers of common bird species breed and forage on site. A small population of GCN breeds in one pond on site (peak count 8), and low numbers of GCN could also immigrate from a translocated population at Airfield Farm 150m to the east. No reptiles are present. Localised INNS exist (cotoneaster bushes).

## Impact assessment, mitigation, enhancements

Habitat creation within and outside the development will compensate much of the habitat loss. A band of woodland planting will take place along the south and east margin of the site, and new hedgerow planting will occur on the northwest edge of the site. Grassland enhancement and pond creation on the northwest side of Welland Avenue will complete the compensation, and generate a BNG of 26.29% by area. Hedgerow creation will achieve 25.26% BNG. Bat mitigation will include sensitive lighting and batbox provision. Artificial badger sett creation and licensed sett closure will mitigate loss of four setts, albeit with a residual loss of foraging habitat. Hedgehog checks will take place. Devegetation will take place outside bird nesting season, and nestboxes will be provided as compensation for lost habitat, and as net gain for swifts and house sparrows. GCN mitigation will follow either a traditional or District Level Licensing route. INNS eradication will take place.

## Monitoring

Post-development monitoring will occur for bat foraging/commuting routes, badger occupation of replacement setts, GCN mitigation, and INNS.

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## **1. Introduction**

### **1.1. Background**

CGO Ecology Ltd (CGO) was instructed by Mace Ltd, on behalf of the Ministry of Justice (MoJ), to conduct an Ecological Impact Assessment (EclA) on land adjacent to Her Majesty's Prison (HMP) Gartree, Gallow Field Rd, Market Harborough, Leicestershire, LE16 7RP (centred on OS grid ref SP 7052 8873). The MoJ proposes a new prison as part of its New Prisons Programme (NPP). The Local Planning Authority (LPA) is Harborough District Council.

A Preliminary Ecological Appraisal (PEA) was conducted by Ramboll (Molesworth, 2020). Phase 2 ecology surveys were conducted by CGO Ecology (CGO) and Ramboll in 2021. All surveys are complete, except bat activity surveys which are ongoing until October 2021. Some reports have been submitted; the others will be submitted during determination.

This EclA report follows Chartered Institute of Ecology and Environmental Management guidance on report-writing (CIEEM, 2017) and EclA (CIEEM, 2018). It presents and evaluates the existing 'baseline condition' of the site; assesses the potential impacts of the development within the Zone of Influence (Zol); sets out the proposed mitigation and compensation measures; identifies any residual impacts, and proposes suitable enhancements. Appendix 1 summarises the legislative and policy framework governing EclA.

### **1.2. Proposed development**

The proposal is an Outline Planning Application (OPA) with all matters reserved, except for access and scale for the construction of a new Category B prison of up to 82,555m<sup>2</sup> GEA (gross external area) within a secure perimeter fence together with access parking, landscaping and associated engineering works on land adjacent to HMP Gartree, Gallow Field Road, Market Harborough, Leicestershire, LE16 7RP.

The indicative site layout proposes a range of buildings and facilities typical of a Category B resettlement prison, including:

- Seven new houseblocks each accommodating up to 245 prisoners (1,715 prisoners in total), totalling c.53,122m<sup>2</sup> GEA.
- Supporting development including kitchen, workshops, kennels, Entrance Resource Hub, Central Services Hub and support buildings, totalling c.29,433m<sup>2</sup> GEA.
- Ancillary development including car parking (c.523 spaces), internal road layout and perimeter fencing totalling 1463 linear metres enclosing a secure perimeter area of 11.69ha (figures to be confirmed following changes to the red line boundary).

The house blocks will be four storeys in height, whilst the other buildings will range from one to three storeys.

Other development proposed includes kennels, polytunnels, car parking (c.523 spaces), internal road layout and perimeter fencing. A bicycle shelter is also proposed.

The new prison will be designed and built to be highly sustainable and to exceed local and national planning policy requirements in terms of sustainability. MoJ's aspirations include targeting near-zero carbon operations, 10% Biodiversity Net Gain (BNG), and at least BREEAM 'Excellent' certification, with endeavours to achieving BREEAM 'Outstanding'.

### **1.3. Objectives**

The aim of this report is to provide an EclA of the proposed development and its Zol to help obtain planning consent. The report must meet standard industry guidelines for EclA (CIEEM, 2018) and ecological report-writing (BSI, 2013; CIEEM, 2017).

The objectives are to:

- Identify legally-protected sites and local designated sites that may be impacted.
- Identify seminatural habitats, particularly priority habitats, that may be impacted.
- Identify populations of protected, rare, and notable species that may be impacted.
- Identify the potential effects of the proposed development on the site's important ecological features.
- Describe the mitigation and compensation measures proposed to avoid or minimise these potential impacts.
- Identify any residual effects that are likely to remain.
- Propose ecological enhancement measures to fully offset any residual effects, and achieve at least 10% BNG.

#### 1.4. Supporting information

The Appendices of this report provide the following supporting information:

Appendix 1 – Legislative and policy framework.

Appendix 2 – Ramboll PEA, CGO and Ramboll phase 2 ecology reports.

#### 1.5. Author

Dr Chris Glead-Owen BSc (hons) PhD MCIEEM, Director & Principal Ecologist of CGO Ecology Ltd, an ecological consultant since 2008 (13 years). Survey licences: CL09 great crested newt (*GCN*, *Triturus cristatus*), sand lizard (*Lacerta agilis*), smooth snake (*Coronella austriaca*), natterjack toad (*Epidalea calamita*), Roman snail (*Helix pomatia*). Mitigation licence-holder for smooth snake and/or sand lizard (6), badger (*Meles meles*) sett closure (3). Experienced practitioner of Phase 1 habitats, UKHab, PEA, National Vegetation Classification (NVC), flora (FISC level 4 botanist), vertebrates, invertebrates, EclA, BREEAM, BNG Metrics, mitigation, creation, restoration, enhancement.



Figure 1 – Development site boundary (red line) and MoJ ownership boundary (blue line).





## **2. Methodology**

### **2.1. Scoping**

A Preliminary Ecological Appraisal (PEA) of most of the application area was conducted by Ramboll in September 2020 (Molesworth, 2020). This was used to guide instruction of phase 2 ecology surveys by CGO in 2021.

### **2.2. Desk studies**

Ramboll (Molesworth, 2020) sought a 2km data search from Leicestershire and Rutland Environment Record Centre (LRERC) which contributed to the PEA. An updated LRERC data search was sought by CGO in July 2021. Liaison with ecological consultancy FPCR was also conducted, to gain up-to-date results from a previous GCN translocation within 500m (FPCR, 2016; Ormerod, R. pers. comm.).

Online resources including Defra MAGIC website (<https://magic.defra.gov.uk/MagicMap.aspx>) were consulted for protected sites and species within a 2km radius, and for general habitat and landscape information.

### **2.3. Extended Phase 1 Habitat Surveys**

Ramboll conducted a Preliminary Ecological Appraisal (PEA) comprising an Extended Phase 1 Habitat Survey on 17<sup>th</sup> and 18<sup>th</sup> September 2020 in dry, sunny weather (Molesworth, 2020; see Appendix 2). The report included a 2km data search from LRERC. The PEA included a Phase 1 habitat survey in line with JNCC (2010) guidelines, extended to include survey and assessment of protected and notable species interests. The season was optimal for species recording, and adequate for habitat mapping and assessment of the potential for protected and notable species presence.

The Ramboll PEA recommended 2 ecology surveys in 2021 of the following potentially-impacted groups: bats, badger, GCN, reptiles, Invasive Non-Native Species (INNS).

Additional evidence from the CGO surveys highlighted some inaccuracies in the Ramboll Phase 1 map, and Mace instructed CGO to update the Phase 1 habitat survey. The updated map is presented here in figure 2, and in a report in the appendices (Gleed-Owen, 2021d).

Phase 2 ecology surveys were conducted by CGO and subconsultant Brindle & Green Ltd (B&G) throughout the February-July 2021 period (Gleed-Owen, 2021a,b,c, in prep; Gleed-Owen & Trewick, 2021a,b, in prep). Bat activity surveys are continuing through August-October 2021. Baseline and proposed habitats were converted to the UKHab system, and entered into the Defra Metric 3.0, with relevant metadata to calculate BNG for the proposed development.

### **2.4. Bat roost survey**

B&G conducted bat Preliminary Roost Assessment (PRA) of buildings and trees identified by Ramboll (Molesworth, 2020) as requiring further assessment. The nocturnal survey recommendations were modified to reflect the findings of this assessment. Nocturnal surveys (dusk emergence, dawn re-entry, totalling 18 surveyor sessions) of three buildings and four trees in the Zol took place between 25<sup>th</sup> May and 21<sup>st</sup> July 2021.

All surveys followed standard guidance (Collins, 2016), with surveyors positioned to observe potential bat emergence and re-entry points on buildings and trees. The lead bat surveyors were Amy Trewick (CL18-licensed) initially, and then Ellen Marshall (CL18 licensed), assisted by John Harvey, Adrian Cox, Kinzie Watts, Veronica Cantero Sanchez, Kerry Baker, Phoebe Collier, Reece Rockley. Surveys were conducted in line with published Covid-19 advice (BCT, 2020; CIEEM, 2020; IUCN, 2020).

Building or tree	Grid reference	Position within Zol
Building B1	SP 70648 88890	In development area
Building B2	SP 70688 88917	In development area
Building B3 (TN10)	SP 70640 88872	In development area
Tree T1	SP 70072 88678	North side of Welland Avenue, within Zol
Tree T2	SP 70026 88648	North side of Welland Avenue, within Zol
Tree T3 (TN19)	SP 70040 88656	North side of Welland Avenue, within Zol
Tree T4 (TN17)	SP 70058 88715	North side of Welland Avenue, within Zol

Table 1 – Buildings and trees subjected to bat nocturnal surveys, with Ramboll (Molesworth, 2020) PEA target notes in parentheses.

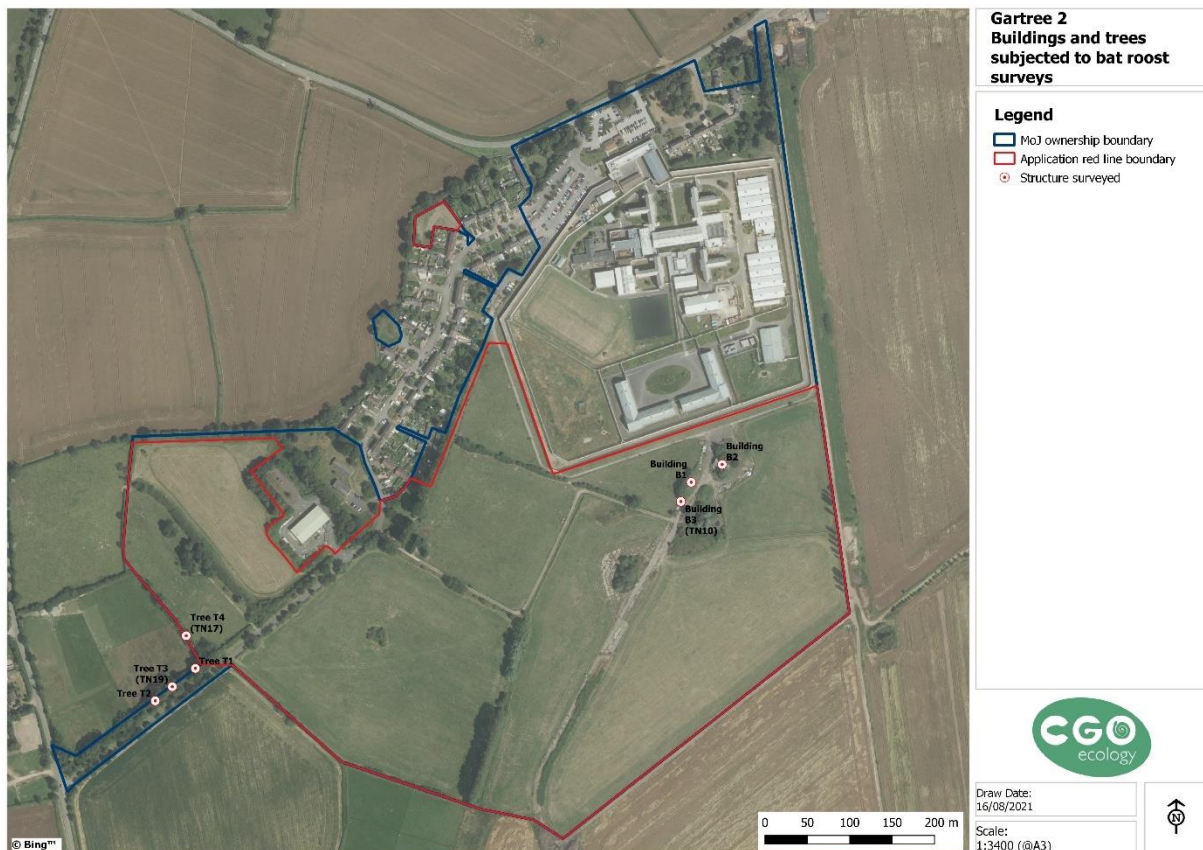


Figure 4 – Buildings and trees subjected to nocturnal surveys for bat roosts.

B1 is a curved open-ended barn with low bat roost potential; B2 is a large modern steel barn with low potential; neither of which were referenced by Ramboll (Molesworth, 2020). B3 (Ramboll TN10) is a small flat-roofed brick building with low potential due to four vents in the interior walls that provide access to the wall cavity. A single, old bat dropping, most likely from a pipistrelle species (*Pipistrellus* sp), was found on the floor inside (Molesworth, 2020). Two other buildings highlighted for bat potential by Ramboll, to the northwest of Welland Avenue, were discounted from phase 2 surveys as they are outside the Zol. All three buildings were subjected to one dusk survey.

Eight trees were identified by Ramboll as providing bat roosting potential, most of which were outside the Zol. One tree within the Zol - T3 (Ramboll TN19) – was graded as low bat roost potential, but increased to moderate potential following initial inspection by B&G. It is located on the north side of Welland Avenue, which will be subjected to increased traffic and potentially new lighting. Three additional trees on the north side of Welland Avenue (T2-4) were assessed as having medium roost potential. T2 and T3 are on the edge of Welland Avenue. T4 (Ramboll TN17) is set back from the north side of Welland Avenue. All four trees were subjected to one dusk and one dawn survey each. See bat roost survey report (Gleed-Owen & Trewick, 2021a).

## 2.5. Bat activity survey

B&G are conducting monthly bat activity surveys from April to October 2021, using a single comprehensive transect (two surveyors) and five static detectors deployed for five days per month. The methodology follows standard guidance (Collins, 2016). The lead surveyors are Amy Trewick (CL18-licensed) and Ellen Marshall (CL18-licensed), assisted by other B&G ecologists. The results from the April, May, June, and July surveys have contributed to this EclA, but the August-October surveys are yet to be completed. The report will follow in late October 2021.

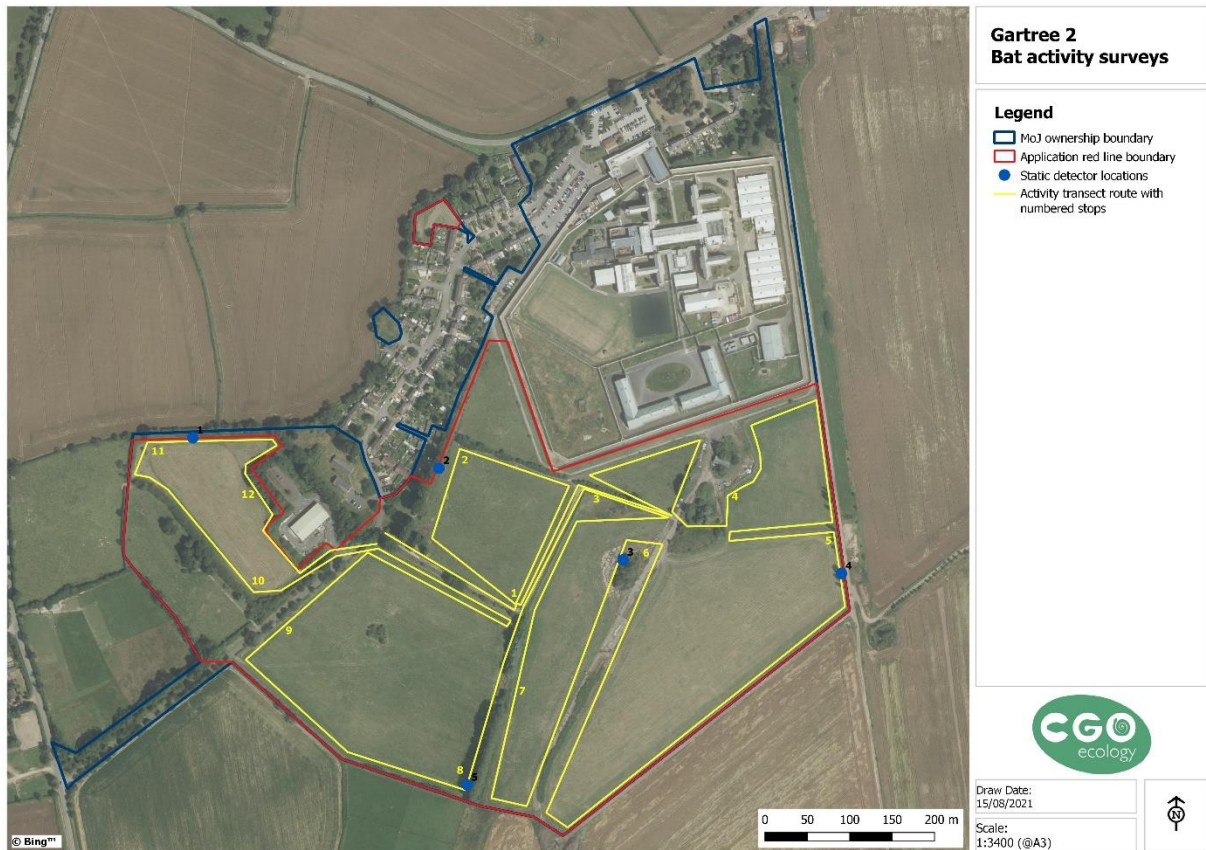


Figure 5 – Bat activity transect route with timed stops, and static detector locations.

## 2.6. Badger bait-marking survey

A PEA and subsequent badger sett survey by Ramboll (Molesworth, 2020, 2021) identified seven setts and several latrines. Resurvey by Chris Gleed-Owen of CGO in February 2021 and Amy Trewick of B&G in March 2021 identified two additional setts, extended knowledge of another, and concluded that two of the Ramboll setts were simple tunnels under fences rather than setts. A new sett numbering system was introduced, and a bait-marking survey was conducted (Gleed-Owen, 2021a). Confidential badger data from within 2km was provided by LRERC (2021).

On 8<sup>th</sup> March 2021, a mixture of peanuts, syrup, and coloured inert plastic pellets (bait) was placed in sett tunnel entrances, with a different pellet colour at each. Over 21 days between 9<sup>th</sup> March and 8<sup>th</sup> April 2021, all latrines were visited, the pellet colours visible in dung were recorded, and further bait was left at each sett. The surveys followed standard guidance (Harris *et al*, 1989; Natural England, 2015; SNH, undated).

The results of the bait-marking survey were used to map out badger activity and movements across the site. The report (Gleed-Owen, 2021a) is presented in Appendix 2.

## 2.7. Barn owl survey

CGO and B&G conducted barn owl surveys in February to July 2021. Daytime building and tree inspections were made in February, March and July 2021, and incidental data was gathered during bat and GCN nocturnal surveys from March to July 2021. A targeted barn owl dusk survey was conducted on 5<sup>th</sup> July 2021. Dusk surveys of two trees with previous barn owl evidence (Ramboll, 2020) were also conducted by B&G. General methodology followed Sawyer (2011), adapted to fit the site and information gathered during PEA and phase 2 surveys. The surveys were led by Chris Gleed-Owen (CGO), Amy Trewick (CL29-licensed), and B&G ecologists. All observations were made without disturbance to barn owls. The report is in the appendices (Gleed-Owen & Trewick, 2021b).

## 2.8. Great crested newt, amphibian survey

Desk study identified 15 ponds within 500m of the development (P1-15), including one within the development area (P1), and three on MoJ land to the west (P2-4), bordering Welland Avenue. The other 11 ponds are on third-party land. Data was obtained on six of them from the FPCR (2016) *GCN Mitigation Strategy* for the Airfield Farm housing development to the east of the site. This provided GCN data on two ponds surveyed by FPCR in 2016 (P10-11), and four mitigation ponds created subsequently (P12-15). The LRERC (2021) search yielded 2018 monitoring data from these mitigation ponds, and data from the 2021 monitoring season was provided by FPCR informally (Ormerod, R., pers. comm.).

The MoJ sought third-party permission for survey access to all off-site ponds, but this was not forthcoming for any of them. Two ponds were identified as being on unregistered land (P5-6) that was easily accessible from Foxton Road; but three ponds (P7-9) without permission were not surveyed, and have not contributed to this EclA.

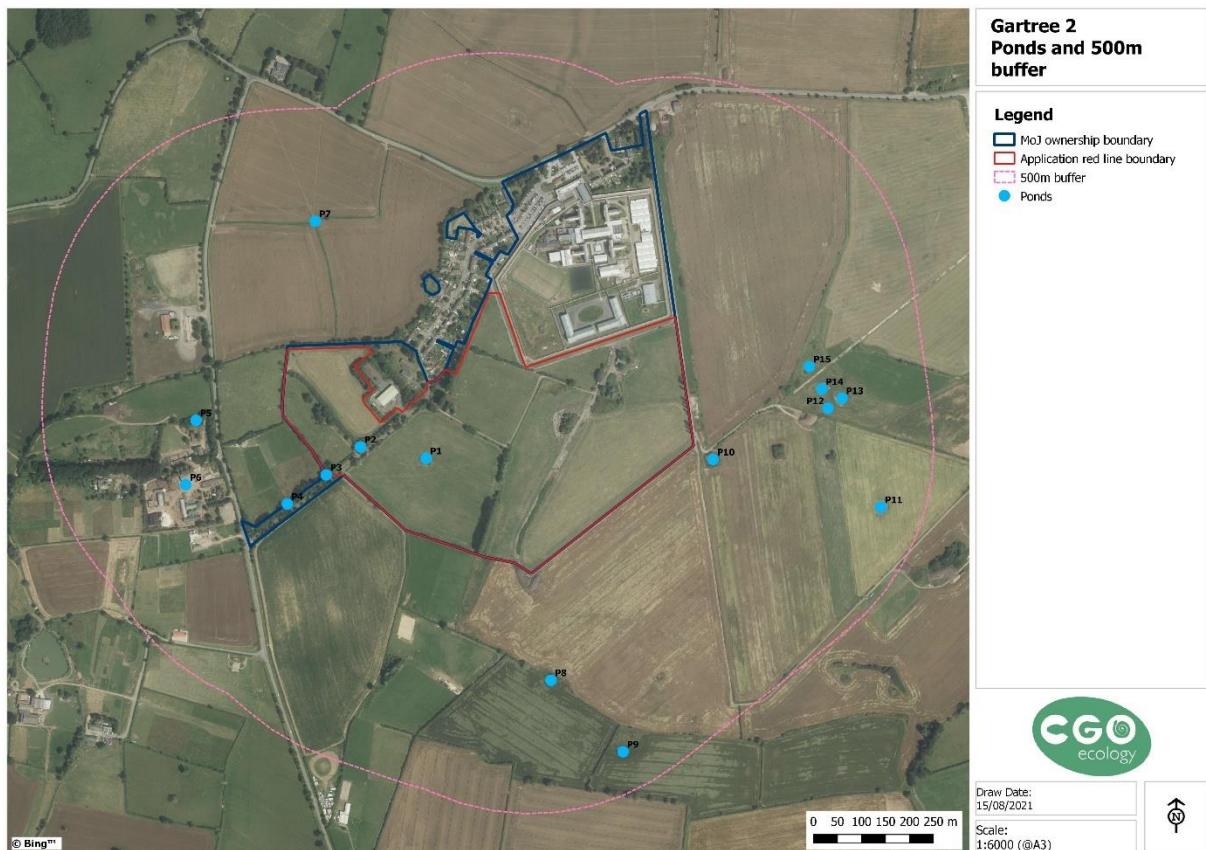


Figure 6 – Ponds identified within 500m of the development, using Ordnance Survey map, Ramboll PEA (Molesworth, 2020), FPCR (2016) and LRERC (2021) data.

CGO subconsultant B&G conducted GCN Habitat Suitability Index (HSI) surveys of the four ponds on MoJ land (P1-4) in March 2021, following standard guidance (ARGUK, 2010). GCN presence-absence surveys were conducted on three wet MoJ ponds (P1-3), with HSI scores in the 'good' and 'below average' Brady categories (cf. ARGUK, 2010).

A fourth pond (P4) was dry and not surveyed further. Two ponds on unregistered land (P5-6) were graded 'average' and 'poor' respectively, but were not surveyed any further, owing to ownership uncertainty and lack of permission.

The presence-absence surveys at MoJ ponds P1-3 followed standard English Nature (2001) methodology, comprising four nocturnal visits using three techniques (typically torch, bottle-trap, egg-search). As per the guidance, GCN presence at P1 led to two additional population assessment visits. The nocturnal surveys were conducted between 19<sup>th</sup> April to 28<sup>th</sup> May 2021, with at least half the visits taking place in the mid-April to mid-May optimal period. The surveyors were Amy Trewick (CL08-licensed), Ellen Marshall (CL08-licensed), and other B&G ecologists. The report will follow during determination.

Lack of landowner permission for three off-site ponds within 500m of the development is a potential limitation. However, in light of the survey results obtained from four MoJ ponds, the information provided by FPCR and LRERC for six off-site ponds, and the locations of the unsurveyed ponds being 250-500m from the development, the lack of data from them is not considered to be a significant constraint.

## 2.9. Reptile survey

Chris Glead-Owen of CGO set up the reptile survey on 2<sup>nd</sup> March 2021, by deploying 120 artificial refugia (roofing felt mats 50cm x 30cm in size) laid in transects of 10, with a spacing of 5m between refugia. After three weeks, seven survey visits were conducted between 24<sup>th</sup> March and 4<sup>th</sup> May 2021, in suitable weather and times of day. Each visit involved a walkover of the whole site, visually searching for reptiles, and checking all 120 artificial refugia. The surveyors were Phoebe Collier, Amy Dennett, and Chris Glead-Owen, all experienced reptile ecologists. Surveys were in line with standard guidance (Froglife, 1999; HGBI, 1998; Natural England, 2011). The report (Glead-Owen, 2021b) is attached in Appendix 2.



Figure 7 – Reptile survey refugia locations.

## 2.10. Invasive Non-Native Species survey

Chris Glead-Owen of CGO conducted walkovers of the whole site on 4<sup>th</sup> May 2021 and 5<sup>th</sup> July 2021, searching for INNS plants. Particular focus was given to ponds and ditches, where the most prevalent INNS plants are normally found. The May visit enabled a detailed inspection of

all habitats prior to the spring surge in vegetation. The July visit was targeted for the peak growing season of annuals and INNS plants which die back and regrow each year. The report (Gleed-Owen, 2021c) is appended in Appendix 2.

### **2.11. Impact assessment**

In accordance with accepted guidance (CIEEM, 2018), all ecological features within the Zol (sites, habitats, species) were categorised according to the geographical scale of their importance (international, national, regional, county, local, site-level). This allows impact assessment on all 'ecological receptors' (potentially-impacted features) using a combination of baseline data from desk study, phase 1 and phase 2 surveys, published guidance, other literature, and personal expertise.

Potential effects are then described qualitatively and quantitatively in terms of their: magnitude, extent, timing, duration, reversibility, frequency, distance (direct or indirect), and nature (positive or negative).

The project development process has incorporated ecologist expertise throughout the scheme design. The mitigation response has followed the 'mitigation hierarchy', i.e. avoid, minimise, mitigate, compensate, and enhance. In addition, the principle of BNG has been built into the landscaping design, in line with the latest National Planning Policy Framework (NPPF) (MHCLG, 2021).

### **2.12. Biodiversity Net Gain**

The Environment Bill will require at least 10% BNG for all developments, and this is already adopted as MoJ policy for new prisons. BNG is also embedded in the NPPF (MHCLG, 2021). BNG calculations were made by CGO in June 2021, following an iterative process in close liaison with Mace and Pick Everard (PEV). The Phase 1 habitat data from the Ramboll PEA and CGO updated Phase 1 habitat plan (2021) were combined by CGO using Geographical Information System (GIS) to extract area and length figures. The post-development area and length figures and treatments were provided by PEV. Following a meeting with Leicestershire County Council (LCC) ecologist Sue Timms of LRERC, it was agreed that the latest Biodiversity Metric 3.0 should be used. Therefore, the data were re-entered into the new Metric 3.0 in July 2021, along with updated PEV layout and landscaping areas. The Metric is being submitted with the OPA.

### **2.13. Limitations**

The bat activity surveys are incomplete. The surveys will continue through August to October 2021, and the report will be submitted in late October 2021. The monthly activity surveys (dusk transects, static detector deployment). Nevertheless, the data gathered so far in April, May, June, and July offer a good insight into the species and numbers of bats present, their commuting and foraging areas, and the likely impacts of the proposed development.

No Breeding Bird Surveys (BBS) or Wintering Bird Surveys (WBS) have been conducted, as they were not identified as necessary at PEA stage. The same conclusion has been reached following the phase 2 surveys. The lack of BBS data is not considered a significant limitation, because the potential impacts on Birds of Conservation Concern (BoCC), strictly-protected species, and birds in general (all of which are protected whilst nesting), can be ascertained from habitat mapping and incidental data gathered from other surveys. The site is unlikely to be important for overwintering birds.

The GCN surveys were restricted to four ponds on MoJ land, with additional information provided by FPCR and LRERC on six off-site ponds. On balance, it is considered that lack of access to other off-site ponds is not a significant constraint.

### 3. Baseline conditions

#### 3.1. Landscape context

The proposed new prison will be on 11.69ha of land to the south of HMP Gartree, a category B prison occupying around 9.78ha. The proposed Gartree 2 site is currently grassland used as sheep pasture, with areas of hardstanding including a World War II taxiway, hedgerows, ditches, small areas of woodland, and a small complex of farm buildings.

Included in the red line boundary are additional areas of grassland, woodland, and hedgerow to the west (on the opposite side of Welland Avenue), a triangular field immediately southwest of HMP Gartree, and an isolated parcel on the northwest edge of the Gartree residential estate.

The wider landscape is a mixture of arable and pasture farmland, with the small town of Market Harborough centred around 3km southeast. A large new housing estate at Airfield Farm has brought the edge of Market Harborough to around 1km from the site.

According to the Defra MAGIC website, soils here are slowly-permeable, seasonally-wet, slightly-acid but base-rich loams and clays (mainly loams). Drainage is impeded, and natural fertility is moderate. Characteristic seminatural habitats are lowland seasonally-wet pastures and woodlands. Modern land uses are mainly arable and grassland, with some woodland. The National Character Area is Leicestershire Vales.

#### 3.2. Designated sites

The Defra MAGIC website (<https://magic.defra.gov.uk/MagicMap.aspx>) shows no protected site designations within 2km, and only three protected sites within 5km. Great Bowden Borrowpit SSSI (Site of Special Scientific Interest) is 2.5km to the east; Kilby-Foxton Canal SSSI is 2.7km to the north; Saddington Reservoir SSSI is 3.8km to the northwest. There are no international designations within 5km. The Impact Risk Zones for SSSIs within 5km require Natural England consultation for aviation, farm, and quarry developments, but not for the proposed prison development.

LWS name	Dist (m)	Type	Grid ref	Description
Grand Union Canal Harborough Arm	627	Canal	SP694898	Canal with stands of emergent vegetation.
Lubenham, south of Foxton Rd	749	Mesotrophic grassland	SP700876	Two grazed fields, with ridge and furrow and moderately species-rich grassland (8 indicator species) along the banks of a stream, plus three pollarded white willows <i>Salix alba</i> (girth not known) along the stream to the south of the field.
Orchard House Ash 1	869	Mature tree	SP704875	Mature ash <i>Fraxinus excelsior</i> tree.
Orchard House Ash 2	870	Mature tree	SP703875	Mature ash tree
Foxton Lock pounds, disused canal and inclined plane	903	Standing water	SP692895	Series of open water lock pounds with carr, reedbeds and <i>Carex</i> swamps; disused canal with species-rich aquatic vegetation, incl. <i>Potamogeton natans</i> ; semi-improved grassland on inclined plane, associated scrub woodland, public access.
Market Harborough, Leicester Road Verges	1562	Mesotrophic grassland	SP724883	Roadside verges on both sides of the road, eight LWS indicator species.
River Welland	1887	Large river	SP740872	Large river

Table 2 – Local Wildlife Sites within 2km of the site (after LRERC, 2021).



Seven Local Wildlife Site (LWS) designations exist within 2km (LRERC, 2021). These have no statutory protection, but they benefit from *de facto* protection through the local planning process.

The site is within a Nitrate Vulnerable Zone (NVZ) for surface water (S832 River Welland). This limits the volume of water discharge to drains or soakaways to 20m<sup>3</sup> per day.

### 3.3. Habitats, plants

#### 3.3.1. Overview

Phase 1 habitat survey presented by Ramboll (Molesworth, 2020) was updated by CGO (Gleed-Owen, in prep) to provide the following habitats with GIS area extracts.

Phase 1 habitat type	Area (ha)
Amenity grassland	0.45
Broad-leaved plantation woodland	0.47
Broadleaved semi-natural woodland	0.86
Building	0.04
Dense scrub	0.47
Hardstanding	1.68
Mixed plantation woodland	0.08
Poor semi-improved grassland	23.41
Scattered scrub	0.16
Standing Water	0.02
Tall ruderal	0.45
<b>Total area</b>	<b>28.09</b>

Table 3 – Phase 1 habitats in the whole application area (red line boundary).

Phase 1 habitat type	Total area (ha)
Amenity grassland	0.27
Broad-leaved plantation woodland	0.18
Broadleaved semi-natural woodland	0.31
Building	0.04
Hardstanding	1.41
Poor semi-improved grassland	0.14
Standing water	18.85
Tall ruderal	0.02
<b>Total area</b>	<b>21.62</b>

Table 4 - Phase 1 habitats that will be lost to the prison development.

Phase 1 habitat type	Area (ha)
Amenity grassland	0.18
Broad-leaved plantation woodland	0.55
Broadleaved semi-natural woodland	0.47
Dense scrub	0.27
Hardstanding	0.23
Mixed plantation woodland	4.56
Poor semi-improved grassland	0.16
Scattered scrub	0.05
Tall ruderal	0.18
<b>Total area</b>	<b>6.47</b>

Table 5 - Phase 1 habitats that will be retained, including those that will be enhanced.

### 3.3.2. Amenity grassland

This Phase 1 habitat is represented by seeded and regularly-mown grassland areas around the fringes of the existing prison. It is dominated by species such as red fescue (*Festuca rubra*) and perennial rye-grass (*Lolium perenne*), with variable cover of forbs such as white clover (*Trifolium repens*). The UKHab conversion is g4 Modified grassland.

### 3.3.3. Broad-leaved plantation woodland

A line of trees running through the development area is primarily composed of hybrid black poplar (*Populus x canadensis*), with a few native trees. A band of plantation woodland also surrounds the MoJ maintenance buildings to the north of Welland Avenue. The UKHab conversion is w1g Other woodland; broadleaved.

### 3.3.4. Broad-leaved semi-natural woodland

Seminatural broadleaved woodland within the development area is confined to small areas of trees comprising white willow (*Salix alba*), grey willow (*Salix cinerea*), hawthorn (*Crataegus monogyna*), wild cherry (*Prunus avium*), and other natives. To the north of Welland Avenue (within the red line, but retained) and further west along Welland Avenue (outside the red line, but within MoJ ownership) are willows, ash, sycamore (*Acer pseudoplatanus*), pedunculate oak (*Quercus robur*), apple (*Malus pumila*), plum (*Prunus domestica*), hawthorn, wild cherry, and others. The UKHab conversion is w1g Other woodland; broadleaved.

### 3.3.5. Building

Within the red line are three farm buildings which will be lost (B1-3); a breeze-block barn, a small brick-built shed, and a curved concrete and brick barn. The UKHab conversion is u1b Developed land; sealed surface.

### 3.3.6. Dense/continuous scrub

There are small areas of dense and scattered scrub around the site, comprising bramble (*Rubus fruticosus* agg.) and other native woody species. The UKHab conversion is h3h Mixed scrub.

### 3.3.7. Hardstanding

These are areas of asphalt, concrete, gravel or other sealed surface, mainly originating from the World War II airfield, but also the perimeter of the existing prison, and the road surface of Welland Avenue. The UKHab conversion is u1b Developed land; sealed surface.

### 3.3.8. Mixed plantation woodland

Along the northwest edge of the development is a line of Lombardy black poplar (*Populus nigra nigra* 'Italica' cultivar) and Leyland cypress (*Cupressus leylandii*). Another area of mixed plantation trees lies adjacent to the maintenance compound north of Welland Avenue. The UKHab conversion is w1h Other woodland; mixed.

### 3.3.9. Poor semi-improved grassland

As defined by Phase 1 (JNCC, 2010), this covers the agriculturally-improved grasslands with poor species diversity, but not dominated by seeded species such as perennial rye-grass (*Lolium perenne*) and of undesirable 'weeds' such as thistles, docks, and white clover that would classify it as 'improved grassland'. Much of the site was mapped as 'improved grassland'

By Ramboll (Molesworth, 2020), but resurvey by CGO in July 2021 (Gleed-Owen, in prep) showed that all fields had tall sward dominated by common bent (*Agrostis capillaris*) and Yorkshire fog (*Holcus lanatus*), but never more than 20-30% of perennial rye-grass, and only patchy weed coverage. All the grassland fields on site are used as pasture, grazed rotationally by sheep (*Ovis aries*), but there is no evidence of reseeding. Thus, the correct Phase 1 habitat is concluded to be 'poor semi-improved grassland' rather than 'improved grassland'.

The UKHab conversion is g4 Modified grassland. To reflect the difference between Phase 1 poor semi-improved grassland and improved grassland, its condition is described in the BNG Metric 3.0 as 'fairly poor' (as opposed to 'poor' for improved grassland).

#### 3.3.10. Scattered scrub

A patch of scattered scrub adjacent to Welland Avenue is largely bramble, with coarse tall herbs, rank grass, and garden escapes. The best UKHab conversion is h3h Mixed scrub, as there is no direct translation for scattered scrub.

#### 3.3.11. Standing water

One pond is within in the red line boundary, a small agricultural pond surrounded by hawthorn. Its water quality is poor, with little submerged aquatic plant growth, and shallow water. This is referred to as P1 in the GCN surveys. Several ditches will be lost to the new prison, which are seasonally wet but do not constitute watercourses. The UKHAB correspondence is r1a6 Other eutrophic standing waters.

#### 3.3.12. Tall ruderal

Patches of nettle (*Urtica dioica*), fat-hen (*Chenopodium album*), redshank (*Persicaria maculosa*) and other agricultural weeds exist around the farm. There is no satisfactory UKHab correspondence.

#### 3.3.13. Intact native species-poor hedgerow

Intact hedgerow in the farmland comprises mainly of hawthorn, with other natives such as elder (*Sambucus nigra*) and dog rose (*Rosa canina*). All 338m will be retained, and some will be extended by new planting. UKHab correspondence is h2b Other hedgerows.

#### 3.3.14. Defunct species-poor hedgerow

Defunct sections of hawthorn-dominated hedgerow comes to around 332m in length. UKHab correspondence is h2b Other hedgerows.

#### 3.3.15. Wet ditch

Within the development area is 393m of wet ditch, all of which will be lost. The ditches do not have notable species composition or diversity, and the water in them is a shallow trickle. None of them is significant enough to be classified as a watercourse in Phase 1 or UKHab terms (e.g. for BNG or BREEAM calculations). There is no UKHab primary habitat translation.

#### 3.3.16. Dry ditch

Of a total of 427m of dry ditch on site, 251m will be lost to the development. There is no UKHab primary habitat translation.

### 3.3.17. Network Expansion Zones

The Defra MAGIC website shows that there are no National Habitat Network 'Network Expansion Zones' on or near the site. These would have provided a planning framework for any proposed habitat enhancement, such as pond creation and agricultural reversion. No Priority Habitats are mapped within 500m.

### 3.3.18. Notable plant species

No notable plant species were observed during surveys. The flora is typical of the agricultural and urban-edge setting.

## 3.4. Bats

### 3.4.1. Desk study

Natural England has issued only one European Protected Species (EPS) mitigation licence for bats within 2km. This was for common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared bat (*Plecotus auritus*) around 1.3km south.

The LRERC search yielded 121 bat records within 2km, comprising common pipistrelle (18 records), soprano pipistrelle (*Pipistrellus pygmaeus*, 10), Nathusius' pipistrelle (*Pipistrellus nathusii*, 5), undetermined pipistrelle (40), brown long-eared bat (10), Daubenton's bat (*Myotis daubentonii*, 3), Natterer's bat (*Myotis nattereri*, 1), undetermined *Myotis* (1), noctule (*Nyctalus noctula*, 12), serotine (*Eptesicus serotinus*, 1), and 20 of unidentified bat species. The nearest record is for a non-specific roost in a property within the Gartree residential estate to the west of the existing prison, outside the Zol.

### 3.4.2. Roost surveys

Three buildings within the development area, and four trees within the Zol, were subjected to between one and three nocturnal (dusk emergence and/or dawn re-entry) surveys. Building B1 (curved barn) was graded low bat roost potential, and surveyed once at dusk. B2 (modern barn) was also low, and surveyed once at dusk. B3 (brick shed, Ramboll TN10), was graded low, and surveyed once at dusk. Trees T1, T2, T3 (TN19), and T4 (TN17) were all graded as having moderate bat potential, and subjected to one dusk and one dawn survey each.

No emergences or re-entries were recorded at any of the buildings or trees surveyed. Bat activity during the surveys was moderate, with registrations primarily from commuting and foraging common pipistrelles, some noctule passes, and occasional brown long-eared, serotine, and Nathusius' pipistrelle. The report is in Appendix 2 (Gleed-Owen & Trewick, 2021a).

### 3.4.3. Activity surveys

Monthly activity surveys are taking place between April-October 2021, involving a walked dusk transect (two surveyors) including 12 timed stops (cf. Collins, 2016), and deployment of five static detectors for five days each month. The results from April, May, June, and July recorded moderate common pipistrelle activity, with low soprano pipistrelle and Nathusius pipistrelle activity, and occasional noctule.

The activity surveys for August-October will follow the same methodology, and are not anticipated to yield significantly different results. A report will be produced during determination (Gleed-Owen & Trewick, in prep).

## 3.5. Badger

One large clan appears to occupy multiple setts across the site (Gleed-Owen, 2021a), and might have additional setts in its territory beyond the surveyed area. The known setts are as follows: two main setts (S1 and S2), a subsidiary sett (S3), and three outliers (S4-S6). Sett 7 is a simple tunnel under a fence.

S2 is in a large mound of stored topsoil, and arguably could be subdivided into a main sett and three subsidiaries. For the current purposes though, it is treated as one extensive main sett.

The LRERC (2021) search yielded 105 badger records, and additional setts are known in farmland to the south.

The bait-marking survey results showed uptake of bait at all seven setts, and wide movement of badgers in all directions across the site. S7 is just a tunnel under a fence, so only S1-S6 are habitable setts. Four of the six setts will be lost to the development. There was no evidence to suggest the presence of more than one territory. This confirms that a single clan territory is present on site.

Feeding remains show that the badgers forage in maize (*Zea mays*) fields to the east of the site. The territory appears to be largely contained within the 25ha site, however.

Breeding was recorded in sett 5, an outlier in the south boundary hedgerow, by an audio recording from of 'whickering' from a sett entrance. A camera-trap survey from 2<sup>nd</sup> to 9<sup>th</sup> March 2021 showed that the sett was still occupied by badgers, presumably including a single lactating female and her cubs. Additional adults may have been present.

The clan is large and occupies at least six setts, including two extensive main setts. Movement patterns are extensive, with animals from all setts moving to all other setts and parts of the territory. Five of the six setts, and nearly all the activity, are within the development area. S5 is on the south edge of the development area. The outlier sett to the west of Welland Avenue (S6) was only occasionally used. The report is provided in Appendix 2 (Gleed-Owen, 2021a).

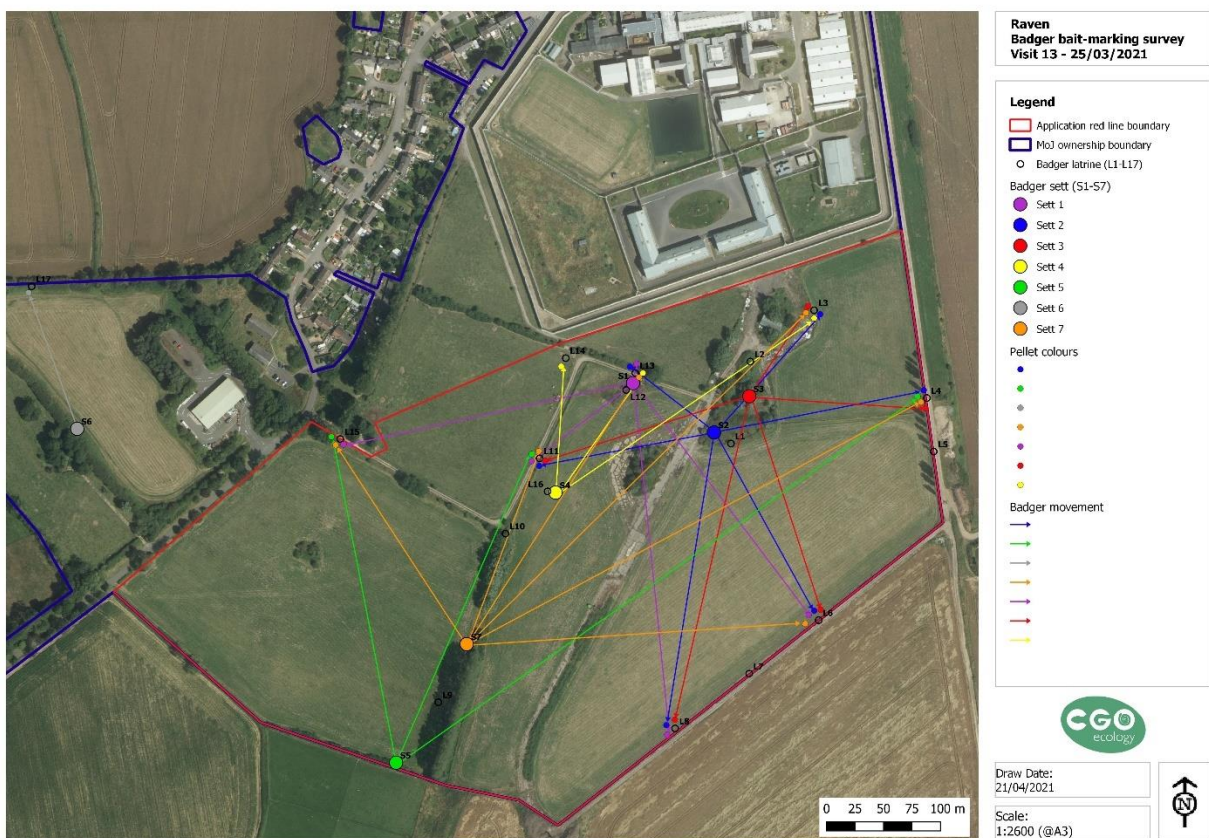


Figure 8 – Badger bait-marking survey results from one of 21 days of survey. Note the extensive movement patterns

### 3.6. Other mammals

Hedgehog (*Erinaceus europaeus*) is likely to be present on site. LRERC (2021) returned 23 records. Otter (*Lutra lutra*) and water vole (*Arvicola amphibius*) are also known within 2km, but there are no suitable habitats on site, and they can be ruled out of the Zol.

### 3.7. Barn owl

Ramboll (Molesworth, 2020) found barn owl pellets showing that two trees north of Welland Avenue are roosts, current or old, and lie within the Zol. These are T3 (TN19) and T4 (TN17). Building inspections and walkovers did not yield any further evidence.

Nocturnal bat and GCN surveys between March-July provided significant opportunity to observe foraging and roosting barn owls, but these only yielded one incidental record of barn owl emerging from a roost in TN16 (outside the Zol). A targeted dusk survey over the development area observed no foraging barn owls, and concluded that the barn owl(s) using TN16, TN17, and TN19 are (or were) foraging over fields to the north of Welland Avenue.

A report is attached in Appendix 2 (Gleed-Owen & Trewick, 2021b).

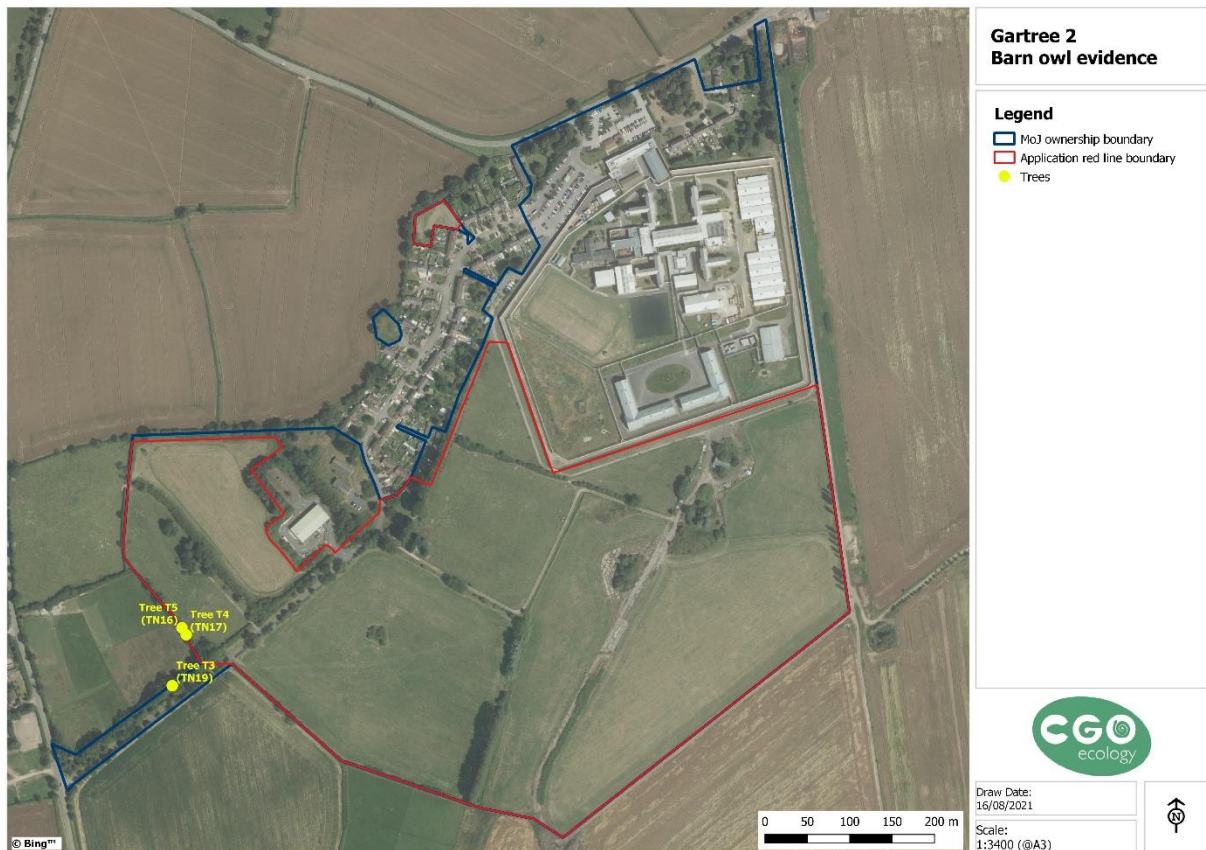


Figure 9 – Trees with barn owl roost evidence.

### 3.8. Other birds

#### 3.8.1. Overview

A range of common birds forage and/or nest on site, potentially including species on the Birds of Conservation Concern (BoCC) Red List and Amber List (Eaton *et al*, 2015). No BBS or WBS have been undertaken, however. Therefore, all bird records are from the LRERC (2021) search, and a few incidental records from other surveys in 2021.

#### 3.8.2. Strictly-protected species

Hobby (*Falco subbuteo*), peregrine falcon (*Falco peregrinus*), red kite (*Milvus milvus*), and kingfisher (*Alcedo atthis*) are among the species within 2km protected on Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA 1981). Red kite is also on Annex I of the Birds Directive.

#### 3.8.3. Red List species

BoCC Red List species occurring locally include herring gull (*Larus argentatus*) and passerines such as linnets (*Carduelis cannabina*) and yellowhammers (*Emberiza citrinella*). None are confirmed breeders on site, however, and the intensive farmed nature of the site is not conducive.

### 3.8.4. Amber List species

BoCC Amber List species such as tawny owl (*Strix aluco*) are likely to occur on wooded edges of Welland Avenue, and fields to the north, but less likely within the development area. Few birds were generally recorded during walkovers and other targeted surveys.

### 3.8.5. Green List/common species, invasive species

Many BoCC Green List bird species are likely to be present on site, nesting and foraging in the development area. Pheasant (*Phasianus colchicus*) is present.

## 3.9. Great crested newt

Following HSI assessment of four ponds (ARGUK, 2010), and nocturnal presence-absence surveys of three ponds in line standard guidelines (English Nature, 2001), GCN was detected in one pond (P1) in the development area. Two additional nocturnal surveys were conducted to identify population class. The peak count was eight GCN, therefore a 'small' population.

Natural England has issued two EPS mitigation licences around 1km east for GCN, in relation to the Airfield Farm development. The evidence from FPCR (2016, and Ormerod, R., pers. comm) and LRERC (2021) confirms that a medium population also exists around 150m east of the development area, in the four Airfield Farm mitigation ponds. Monitoring in spring 2021 showed small to medium populations in all four ponds (Ormerod, R., pers. comm.).

Given that this is new habitat, and the intervening habitat is intensive arable and pasture, with no woodland or hedgerow, it is unlikely that any GCN from the Airfield Farm mitigation ponds have yet arrived on MoJ land. The existing pond P10 just outside the southeast corner of the red line boundary did not contain GCN in the FPCR 2016 survey, but it could be occupied by now, given the proximity of a population in four mitigation ponds just over 100m away.

GCN is strictly protected by the Habitats Regulations 2019 and Schedule 5 of the WCA 1981 (as amended). A report will be submitted during determination (Gleed-Owen, in prep).

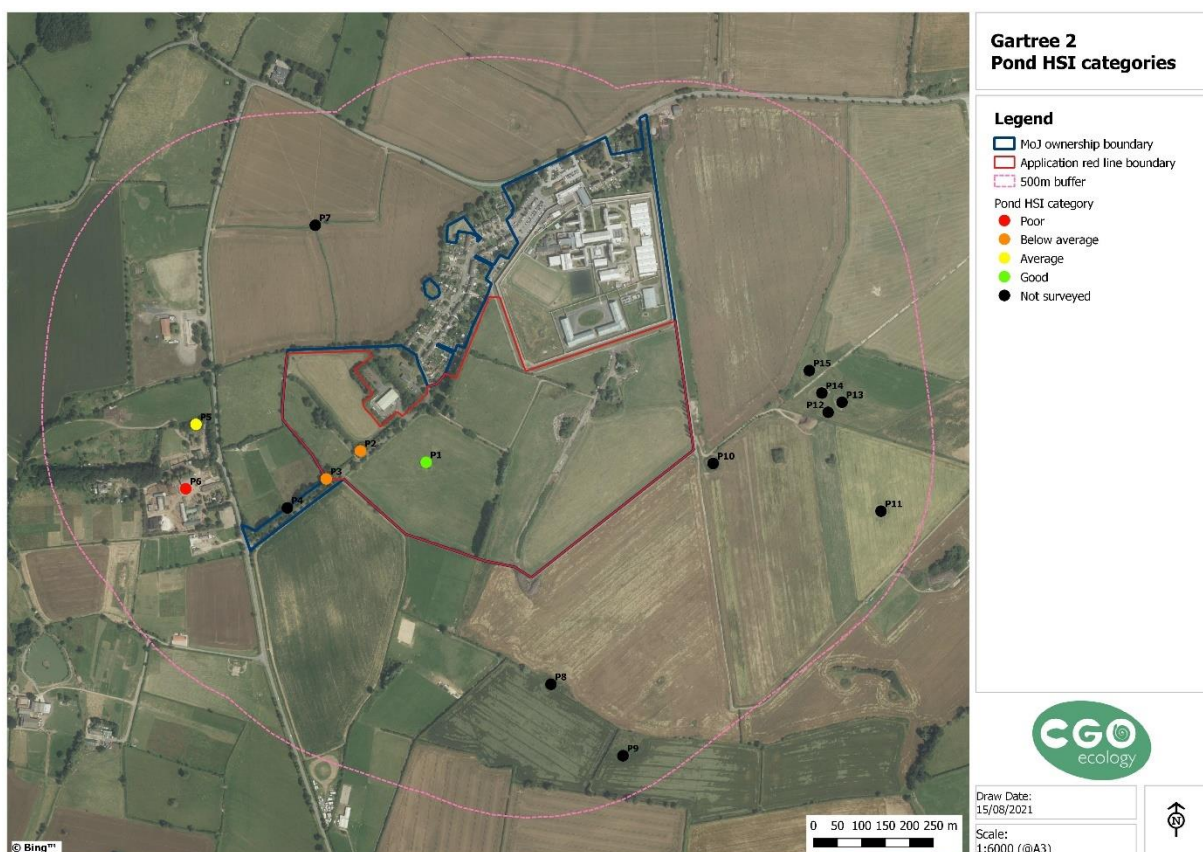


Figure 10 – HSI results for ponds accessed within 500m of the site.

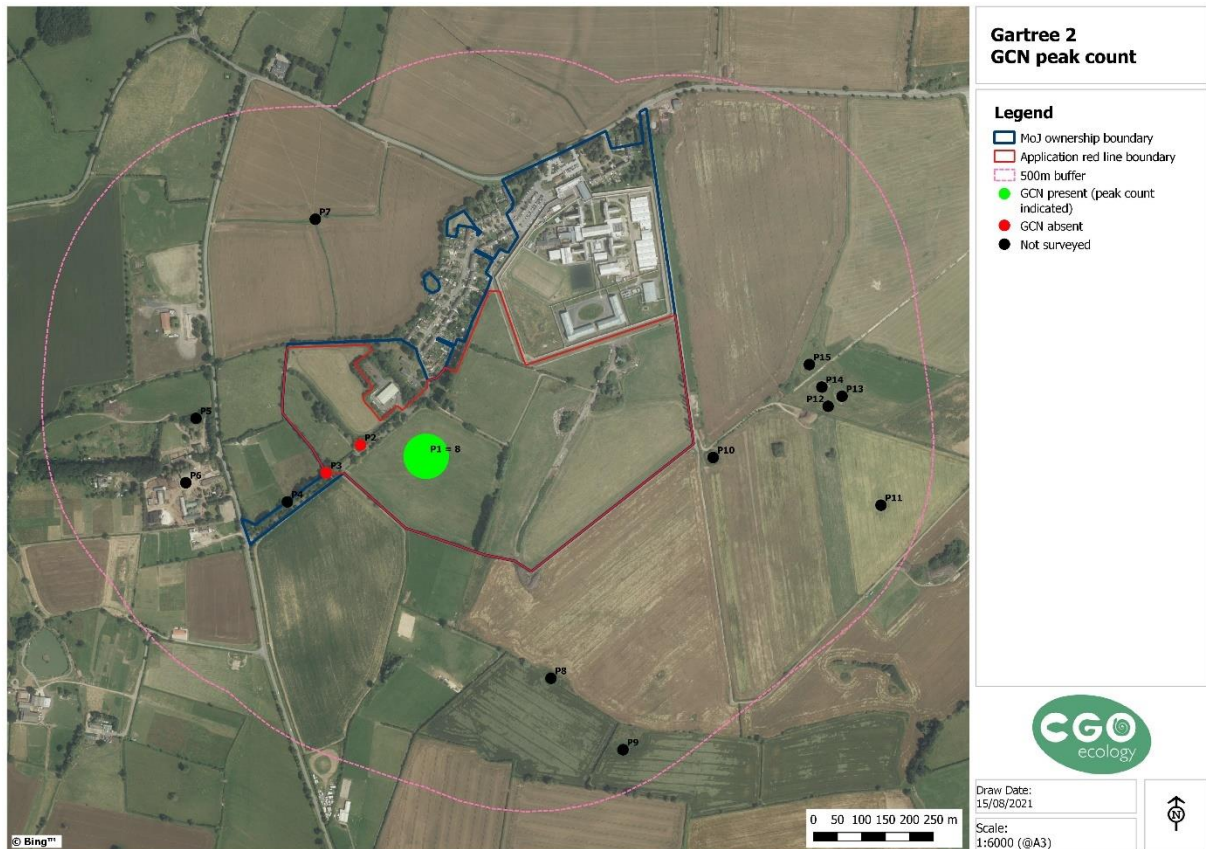


Figure 11 – GCN presence-absence and peak counts derived from nocturnal surveys. Third-party data from FPCR also confirms small to medium counts in 2021 in ponds P12-15, 150m east of the red line.

### 3.10. Other amphibians

Only smooth newt (*Lissotriton vulgaris*) was encountered during the GCN nocturnal surveys at P1, with low numbers similar to the GCN counts.

### 3.11. Reptiles

No reptiles were encountered on any visit, and they can be assumed to be absent from the site. The LRERC (2021) search yielded 10 grass snake (*Natrix helvetica*) records within 2km, but these are generally associated with areas with more aquatic habitats. The absence of grass snake here reflects the low pond density and lack of watercourses. The lack of other reptiles in the local area reflects the intensively-farmed landscape with networks of seminatural habitats relatively scarce. The report is attached in Appendix 2 (Gleed-Owen, 2021b).

### 3.12. Fish

No fish were encountered, and none are likely to be present on site.

### 3.13. Invertebrates

A range of common insects and invertebrates is likely to be present.

### 3.14. INNS

The site is largely INNS-free. The only WCA 1981 Schedule 9 species (illegal to release, plant or allow to spread) are several isolated wall cotoneaster (*Cotoneaster horizontalis*) shrubs on the northern fringes of the site. See report in Appendix 2 (Gleed-Owen, 2021c).

Pheasant is present on site. Grey squirrel (*Sciurus carolinensis*) is likely to be present, and possibly other INNS animals.

A Biosecurity Plan must be in place to ensure that all contractors, suppliers, vehicles, boots, clothing, and other potential INNS vectors are INNS-free. A check-clean-dry policy must be in place for any work affecting any wet habitats. Identification posters for key INNS plants must be prominently posted, and toolbox talks must be given to all site visitors.



The MoJ will undertake an Eradication Plan for INNS plants prior to development. INNS plants must be removed and transported by a registered carrier to a controlled waste site. This must take place before any enabling works occur in the infested area, that could cause further spread.

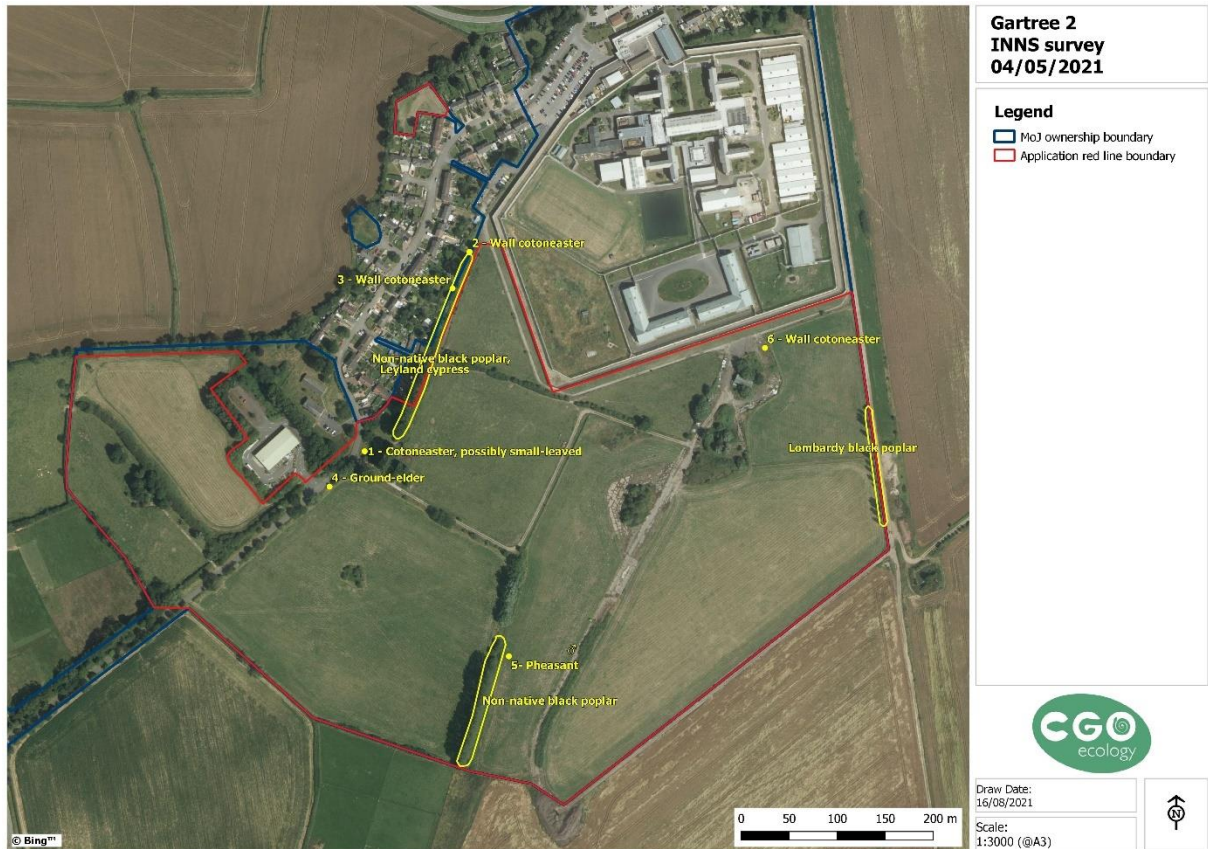


Figure 12 – INNS recorded within the red line boundary.

## 4. Impact assessment and mitigation measures

### 4.1. Overview

Ecological feature	Importance
Designated sites	n/a
Habitats	Site
Bats	Site
Badger	Local
Other mammals	Site
Barn owl	Site
Other birds	Site
Great crested newt	Site
Other amphibians	Site
Invertebrates	Site

Table 6 – Importance of ecological features.

Mitigation has been embedded into the scheme from its beginning. The instruction of ecological surveys was sufficiently early to allow baseline data-gathering, and incorporation of the ecological evidence into the design process. The scheme was designed to minimise the amount of hedgerow lost, and to avoid the areas west of Welland Avenue where the most valuable seminatural habitats are. There is no other location within the MoJ’s Gartree estate with sufficient space for the new prison.

Habitat compensation has also been embedded into the scheme's design, in order to meet the 10% BNG target. Species mitigation and compensation has affected the design of the landscaping provisions, as it was concluded that at least two main setts will need to be created around the southern/eastern perimeter of the site, with a continuous band of new woodland to provide habitat continuity for badgers displaced from the site. It was also identified as important that the badgers continued to have access to maize fields to the east and southeast.

<b>Ecological features</b>	<b>Importance</b>	<b>Potential impacts</b>	<b>Mitigation</b>
Habitats	Site	Moderate. Construction loss of poor semi-improved grassland, woodland, ditches, pond	Woodland, pond, and hedgerow creation. Grassland enhancement. BNG 26.29% area, 25.26% hedgerows.
Bats	Site	Moderate. Loss of commuting/foraging habitat for at least five species, light pollution.	Habitat enhancement in other areas. New roosts (batboxes) to encourage use of different areas. No new lighting of Welland Ave.
Badger	Local	Major. Construction loss of five setts (including two main setts) and much foraging territory.	Create at least two new main setts on south/east perimeter. New woodland belt around south/east edge of site, providing habitat connectivity and continued access to maize fields.
Other mammals	Site	Moderate. Construction killing, injury, loss and fragmentation of habitat.	Hedgehog checks during enabling works, especially clearance of debris and scrub. Provide hedgehog homes as alternative shelter in retained woodland and hedgerows.
Barn owl	Site	Minor. Disturbance of roosts and/or nest site. Loss of foraging habitat.	Safeguard roost trees. No lighting near roosts. Enhancement of grassland northwest of Welland Ave to offset losses. Installation of nestbox.
Other birds	Site	Minor. Loss of nesting and foraging habitat. Loss of wintering habitat.	Enabling works to avoid March-August nesting season. Compensatory nestboxes for common passerines. New woodland, nestboxes, and other habitat provisions will provide BNG for a range of birds.
Great crested newt	Site	Moderate. Low population on site, moderate population 150m east. Construction killing and injury. Permanent loss of breeding place (P1), resting places around P1 and east edge of site.	Traditional mitigation or DLL scheme to mitigate impacts. Significant net gain of breeding and terrestrial habitat through pond creation and grassland enhancement west of Welland Ave.
Other amphibians	Site	Minor. Construction killing, loss of breeding and terrestrial habitat.	Significant net gain of breeding and terrestrial habitat through pond creation and grassland enhancement.
Invertebrates	Site	Minor. Construction loss of habitat.	No direct mitigation. Compensation and enhancement through habitat creation, improvements on wider site, installation of 20 bee-bricks in new builds, and new ponds.
INNS	Site	Minor. Construction and operational accidental infestation, continued spread.	Biosecurity Plan in place. Eradication programme for cotoneaster prior to works.

Table 7 – Ecological impacts and mitigation.

A Construction Environmental Management Plan (CEMP) will be in place throughout the development. A Habitat Management Plan will be in place for 30 years for all retained, created, and enhanced habitats.

## **4.2. Designated sites**

### 4.2.1. Potential impacts

No direct or indirect local construction or operational impacts on any local protected sites. No protected sites within 2km. No Local Wildlife Sites within 500m.

### 4.2.2. Mitigation measures

None.

### 4.2.3. Compensation

None.

## **4.3. Habitats**

### 4.3.1. Potential impacts

All of the significant impacts on habitats will be during the construction phase. There are not likely to be any negative effects on retained habitats during the operational phase. The development will cause direct permanent loss of 18.85ha of poor semi-improved grassland, 0.63ha woodland, 1.45ha of buildings and hardstanding, and small areas of other habitats. Of the linear habitats present, all hedgerows will be retained, but 644m of wet and dry ditch will be lost. Temporary sound, light, and dust disturbance of hedgerows and trees along Welland Avenue could occur.

### 4.3.2. Mitigation measures

Follow the mitigation hierarchy, any loss of seminatural habitats must be fully compensated by replacement planting on-site, and/or off-site offsetting. Following EclA principles, all important features must be identified, and the potential impacts on them must be understood. The proposed mitigation and compensation must be appropriate, and secured by effective means.

The geographical scale of importance and impacts must be clear. The likely residual impacts must be clearly stated, and the potential cumulative impacts when considering this development alongside others in the area.

Loss of habitats will be compensated by on-site creation and enhancement, achieving 26.29% BNG for habitats, and 25.26% BNG for hedgerows. New broadleaved woodland planting around the south and east edge of the new prison will significantly increase connectivity of woodland around the site perimeter. New grassland within the prison will offset much of the loss of existing grassland. Two new ponds to the northwest of Welland Avenue will offset the loss of a pond and ditches. There will be a net gain in hedgerow.

The CEMP will minimise impacts on retained habitats. The HMP will ensure favourable management of the retained, enhanced, and created habitats for a 30-year period.

### 4.3.3. Compensation

Inevitably the development site will be less green than it is now, and BNG habitat trading complicates the concept of habitat mitigation, compensation, and enhancement. Landscaping associated with the new prison (to be agreed through planning) will mitigate the loss of some habitats, but compensatory provisions will also be needed. These are included within the red line boundary.

Loss of habitats will be compensated by on-site creation and enhancement, achieving 26.29% BNG for habitats, and 25.26% BNG for hedgerows. New broadleaved woodland planting around the south and east edge of the new prison (2.03ha) will replace that lost to the development (0.67ha).

Two new ponds to the northwest of Welland Avenue (0.04ha) will offset the loss of a pond (0.02ha). No hedgerow compensation is needed.

Loss of 18.85ha poor-quality pasture will be compensated by enhancement (seeding) of 5.17ha of retained pasture to achieve a species-rich neutral grassland, equivalent to semi-improved in Phase 1 terms, and 'good' condition modified grassland in UKHab/BNG Metric 3.0 terms. This will be achieved by cutting hard, scarifying, and seeding with native species-rich grass and herb mix, with introduction of a suitable grazing regime.

The two new ponds are proposed will be partly compensation, and partly enhancements. (It is difficult to differentiate between compensation and enhancement measures where BNG habitat trading blurs the lines between the two; and difficult to link measures to impacts when there are incomparabilities involved).

#### **4.4. Bats**

##### 4.4.1. Potential impacts

No roosts will be affected by construction or operational activities, but significant commuting and foraging habitat will be lost permanently. Activity surveys and roost surveys have so far identified at least five bat species using the site. These are low numbers of common pipistrelle, noctule, soprano pipistrelle, Nathusius' pipistrelle, and *Myotis*. It is likely that the number of bats using the development area at any one time is fewer than 10.

Construction activities could cause an increase in noise, lighting and other effects along Welland Avenue, commuting routes and foraging areas. If new permanent lighting is proposed on Welland Avenue, this would cause a significant operational impact.

##### 4.4.2. Mitigation measures

Permanent lighting must be avoided on Welland Avenue, and a sensitive lighting plan be used during construction. New habitat provisions (especially woodland on south/east perimeter) will offset the loss of foraging habitat in due course, but there will be a reduction in available habitats in the short to medium term. New batbox provisions in land northwest of Welland Avenue will be used to encourage use of that area. Grassland enhancement will provide better foraging habitat than at present.

The final results of the monthly activity surveys will inform impact assessment of the development on bat commuting routes and foraging areas, and may require additional mitigation. Any potential legal offences would require a Natural England mitigation licence. Planning consent is a prerequisite. Reasonable Avoidance Measures are preferable.

##### 4.4.3. Compensation

No compensation need for roosts has been identified, but loss of foraging and commuting habitat will need to be compensated by new batboxes. These would be installed on suitable trees, buildings and/or woodland edges, especially northwest of Welland Avenue where enhanced grassland is being provided. The new woodland provisions to the south and east will take decades to reach maturity and provide natural roosts; hence the need for artificial alternatives in the interim.

The numbers and types of batboxes will be decided upon completion of the bat activity surveys, once a full picture is known of commuting and foraging routes through the whole April-October season.

## **4.5. Badger**

### 4.5.1. Potential impacts

Around 20ha of territory will be permanently lost, including two main setts (S1-2), a subsidiary (S3), and an outlier sett (S4). Two outlier setts on the southern site margin (S5) and on BNG enhancement land to the northwest of Welland Avenue (S6) will be retained.

### 4.5.2. Mitigation measures

Licensed sett closure will be used to evict badgers from four setts (S1-4) within the development area. This must be conducted in the July-November period, and Natural England will only issue a licence once replacement setts are constructed and proven to be occupied. Two outlier setts (S5 and S6) will be retained.

### 4.5.3. Compensation

At least two artificial main setts will be constructed around the south and east edge of the development site. This peripheral area will be planted with 2.03ha of new woodland to provide an extensive belt of connected habitat that will in time provide a net gain in foraging habitat. The badger clan will continue to have access to the maize fields to the east and southeast. Two outlier setts (S5 and S6) will be retained.

## **4.6. Other mammals**

### 4.6.1. Potential impacts

During construction, hedgehogs could be killed and/or displaced if no safeguards were in place. Hedgehog habitat will be permanently fragmented. No operational impacts are likely.

### 4.6.2. Mitigation measures

Hedgehog check when clearing vegetation, debris, or other locations where they may shelter. Planting of new woodland, and pasture reversion to meadows, will enhance habitat and connectivity in the south and east of the new prison, and northwest of Welland Avenue. A carefully-worded planning condition is recommended.

### 4.6.3. Compensation

Install 10 artificial hedgehog homes in undeveloped parts of the red line boundary, to offset the loss of current shelter habitat.

## **4.7. Barn owl**

### 4.7.1. Potential impacts

Construction will cause permanent loss of grassland that could be used occasionally as foraging habitat. However, no barn owls have been recorded in the development area, and therefore this loss is theoretical and minor. Increased lighting and construction activity along Welland Avenue could disturb existing tree roosts to the north of Welland Avenue.

### 4.7.2. Mitigation measures

No nocturnal lighting of Welland Avenue will occur during construction, and no permanent new lighting along Welland Avenue.

### 4.7.3. Compensation

A barn owl nestbox will be erected in a suitable tree as far north of Welland Avenue as possible, to encourage roosting/nesting away from Welland Avenue.

## **4.8. Other birds**

### 4.8.1. Potential impacts

Construction will cause permanent loss of nesting and foraging habitat for a range of common birds, although probably no more than 10 pairs. It could also cause destruction of nests, and killing and injury of chicks in the absence of mitigation. Possible effects on overwintering birds are unknown, but not expected to be significant. There is much similar pasture on farmland in all directions; therefore, it is unlikely that this site provides an important overwintering resource.

The construction of the new prison will have a positive impact by creating new nesting habitat for Red List and Amber List gulls.

### 4.8.2. Mitigation measures

Demolition, tree felling, shrub/scrub removal, and commencement of other enabling works, such as cutting or driving over long grass, infilling ponds, or clearing debris, must avoid the March-August nesting season. If any work must commence within the nesting season, it must be preceded by an ecologist nest check leading to an all clear. Any active nests must be safeguarded with a 5m stand-off using road pins and hazard tape or fencing. A Natural England mitigation licence is not likely to be needed for any species, but a carefully-worded planning condition will be necessary.

### 4.8.3. Compensation

Breeding habitat compensation by installation of suitable nestboxes in other areas of the site (to provide alternatives in the short term). The number and types must reflect the species and estimated numbers of territories affected. Also, habitat creation (woodland, shrubs, hedgerows, ponds) and enhancements (pasture seeding/reversion) within and outside the development.

## **4.9. Great crested newt**

### 4.9.1. Potential impacts

One breeding pond P1 with a small population (peak count of eight GCN) will be lost, as well as terrestrial habitat used by low numbers of GCN around P1 and around the southeast corner of the site, near to the Airfield Farm mitigation area. The number of GCN around P1 is likely to be in the low tens. The number of GCN that have immigrated from the Airfield Farm ponds is likely to be fewer than 10. The intervening habitat is relatively unfavourable for GCN, and there is no woodland to attract hibernating newts in their terrestrial phase.

### 4.9.2. Mitigation measures

Loss of breeding and resting places is likely to occur. Any potential legal offences under the Habitats Regulations 2017 (as amended) will require a Natural England mitigation licence or a District Level Licensing (DLL) scheme alternative. Planning consent is a prerequisite for both. No mitigation is proposed as such, as a DLL will be used to compensate the impacts. CGO is currently liaising with Mace, PEV, Natural England and LCC/LRERC to identify the preferred route.

### 4.9.3. Compensation

If DLL is engaged, it will offset the impacts. This involves a financial contribution to an off-site habitat-creation scheme run by a Leicestershire partnership, with long-term safeguard and management of a network of ponds and terrestrial habitat. In return, a licence is granted to commence work on site. Alternatively, traditional mitigation methods will involve exclusion/drift fencing, pitfall/bottle-traps, capture/translocation, pond creation, and other habitat creation.

## **4.10. Other amphibians**

### 4.10.1. Potential impacts

Low numbers of smooth newt could be harmed, and their breeding and terrestrial habitat will be lost permanently during construction. No operational effects.

### 4.10.2. Mitigation measures

None. There is no requirement to mitigate for loss of widespread amphibians.

### 4.10.3. Compensation

New compensatory habitat (pond creation, grassland enhancement, woodland planting) will fully offset the loss of existing amphibian habitats. DLL or traditional mitigation for GCN will benefit smooth newts.

## **4.11. Invertebrates**

### 4.11.1. Potential impacts

General permanent loss of habitat due to construction. Construction and landscaping will also create new opportunities for invertebrates, though likely a different spectrum of species. No operational effects are anticipated.

### 4.11.2. Mitigation measures

No direct mitigation.

### 4.11.3. Compensation

No targeted compensation, but habitat creation will offset the loss of habitat.

## **4.12. INNS**

### 4.12.1. Potential impacts

Impacts most likely during enabling works and construction, but there is an ongoing risk during operation. Accidental import or spread of INNS plants (especially damaging WCA 1981 Schedule 9 species), aquatic and soil invertebrates, and fungal and bacterial pathogens are most likely. This can occur on vehicle wheels, digger buckets, chainsaws, clothing, boots, and other equipment, especially those coming from another site. Also, soil around trees and plants from nurseries can import invertebrates (and occasionally vertebrates) from other sites, including INNS.

### 4.12.2. Mitigation measures

The MoJ has confirmed it will conduct an Eradication Plan for the existing cotoneaster stands prior to development commencing. This will be by hand-cutting/pulling and safe disposal of the arisings. All arisings from INNS removal must be transported by registered carrier to a controlled waste site.

A Biosecurity Plan will be implemented throughout the development, from enabling works to construction and landscaping. This must be posted prominently in site cabins and on fences. All contractors and visitors must be given a toolbox talk on the dangers of INNS, and the measures to prevent their spread.

A strict check-clean-dry policy will be enacted, to ensure no INNS are imported or spread on equipment, vehicles, materials, clothing, or boots. INNS identification posters will be shared and posted prominently, including the most common conspicuous INNS plants.

Any new infestations or potential biosecurity breaches must be reported to the site manager, who will call an ecologist immediately. INNS monitoring will take place at monthly intervals. implemented. A carefully-worded planning condition will be beneficial.

## 5. Residual impacts, cumulative effects, enhancement measures

### 5.1. Overview

It is not possible to accurately define mitigation, compensation, and enhancement measures, as there is unavoidable overlap between them. Nevertheless, it is assumed that all woodland creation is mitigation, and all pond creation in the 'wider BNG habitat area' is enhancement.

Ecological features	Residual impacts	Cumulative effects	Enhancements
Designated sites	None	None	None
Habitats	No net loss of important habitats.	None	26.29% net gain in seminatural habitats by area. 25.26% net gain in hedgerow.
Bats	Net loss of commuting and foraging habitat.	None	Net increase in roost availability by installation of batboxes in trees.
Badger	Net loss of foraging habitat.	None	None
Hedgehog	None	None	None
Barn owl	None	None	New nestbox in land northwest of Welland Ave.
Other birds	Net loss of foraging and nesting habitat.	None	Nestboxes and new woodland planting.
Great crested newt	Net loss of breeding and terrestrial habitat.	None	Net gain in pond numbers and connectivity northwest of Welland Ave. Increased woodland connectivity along south/east edge of new prison.
Other amphibians	None	None	Net gain in pond numbers and connectivity northwest of Welland Ave. Increased woodland connectivity along south/east edge of new prison.
Invertebrates	None	None	Bee-bricks in new buildings. Net gain in aquatic habitat area and diversity.
INNS	None	None	Eradication of existing stands.

Table 8 – Residual impacts, cumulative effects, and enhancement measures.

The necessity of achieving BNG requires enhancement, but the Biodiversity Metric's habitat trading system makes it difficult to say which measures are enhancement, and which are compensation. Thus, the process must be caveated.

### 5.2. Designated sites

#### 5.2.1. Residual impacts

None.



#### 5.2.2. Cumulative impacts

None.

#### 5.2.3. Enhancements

None.

### **5.3. Habitats**

#### 5.3.1. Residual impacts

The permanent loss of mature woodland through construction cannot be immediately compensated by new planting (a fact that is built into the Metric's BNG calculations). New woodland will not provide the same quality of habitat as the woodland lost for at least 30 years.

#### 5.3.2. Cumulative impacts

None.

#### 5.3.3. Enhancements

Woodland planting, grassland enhancement, and hedgerow creation will each produce a net surplus by area, which can be viewed as an enhancement. A surplus pond will be created in the northwest pasture-enhancement area. The HMP will ensure favourable management for 30 years.

### **5.4. Bats**

#### 5.4.1. Residual impacts

Loss of woodland, and construction of urban habitats, are likely to have a residual impact. This cannot be accurately quantified until completion of the activity surveys in October 2021, and will be identified in a report during determination. There should be no residual impacts once alternative roost provisions and habitat enhancements are made.

#### 5.4.2. Cumulative impacts

None.

#### 5.4.3. Enhancements

Regardless of the mitigation/compensation needed above, at least 20 batboxes (artificial roosts), for a range of species and roost types, should be installed in suitable locations on new builds and retained trees around the prison estate.

### **5.5. Badger**

#### 5.5.1. Residual impacts

A residual loss of foraging habitat will occur, but new woodland habitat and continued access to maize fields will largely offset this.

#### 5.5.2. Cumulative impacts

None.

#### 5.5.3. Enhancements

None.

## **5.6. Other mammals**

### 5.6.1. Residual impacts

A net loss of hedgehog habitat may occur, but will mostly be offset by new hedgerow creation and grassland enhancement.

### 5.6.2. Cumulative impacts

None.

### 5.6.3. Enhancements

Install 10 hedgehog homes in woodland and densely-vegetated sheltered locations around the site.

## **5.7. Barn owl**

### 5.7.1. Residual impacts

Net loss of foraging habitat is likely to be minimal. Mitigation of potential impacts along Welland Avenue will reduce residual impacts to zero.

### 5.7.2. Cumulative impacts

None.

### 5.7.3. Enhancements

Seeding of poor-quality pasture, and removal of intensive grazing to the northwest of the site, will provide a net gain in foraging habitat for barn owls.

## **5.8. Other birds**

### 5.8.1. Residual impacts

The loss of woodland and seminatural habitats will have a short- to medium-term impact on breeding habitat. In the long term, there will be no residual impacts once compensatory woodland and other habitats are mature.

### 5.8.2. Cumulative impacts

None.

### 5.8.3. Enhancements

At least 10 integrated swift (*Apus apus*) nest-bricks installed on upper east or north elevations of new builds, at least 5m high, away from windows. At least 10 house sparrow (*Passer domesticus*) terraces installed in suitable locations on new builds. Both are BoCC Red List species (Eaton *et al*, 2015). Neither species is currently recorded as nesting on site. Further enhancements could easily be provided for other species, such as house martin (*Delichon urbicum*), an Amber List species.

## **5.9. Great crested newt**

### 5.9.1. Residual impacts

None. Resolved by traditional or DLL route mitigation.

### 5.9.2. Cumulative impacts

None.

### 5.9.3. Enhancements

The creation of two ponds will offset the loss of one, and result in a net gain of well-connected breeding and terrestrial habitat northwest of Welland Avenue. The new woodland belt along the south and east edge of the new prison will provide habitat connectivity with the Airfield farm GCN mitigation area. This will be a net gain in GCN conservation status (range, habitat, population, prospects) at local level.

## **5.10. Other amphibians**

### 5.10.1. Residual impacts

None.

### 5.10.2. Cumulative impacts

None.

### 5.10.3. Enhancements

Likely to be a net gain in local amphibian status. The proposed pond and woodland creation and grassland enhancement measures will yield a net gain in amphibian habitat.

## **5.11. Invertebrates**

### 5.11.1. Residual impacts

None. Loss of habitats will be offset by creation of a different suite of habitats.

### 5.11.2. Cumulative impacts

None.

### 5.11.3. Enhancements

At least 20 integrated bee-bricks will be installed in the upper courses of suitable sunny elevations of new builds, where they will receive maximum sunlight. If the construction is not brick, bee-bricks can be placed on the roofs of suitable buildings instead of integrating them into the elevations. Bee-bricks are standard brick size, with short tunnels for solitary bees to nest in. They closed at the rear, so do not allow for insect entry to wall cavities. Bee-bricks can also be placed on a flat roof.

Creation of new ponds will increase diversity and extent of aquatic habitats available to invertebrates. A planning condition would be useful to ensure implementation. Pond creation and grassland enhancement is likely to yield a net gain in invertebrate diversity and biomass.

The net gain in ponds will have a positive effect on aquatic invertebrates, Odonata, and some other groups.

## **5.12. INNS**

### 5.12.1. Residual impacts

None. The development will not have any negative impacts from INNS, as a Biosecurity Plan will be in operation, and an INNS Eradication Plan will be completed before construction begins.

### 5.12.2. Cumulative impacts

None.

### 5.12.3. Enhancements

The existing cotoneaster stands will be subjected to an Eradication Plan in autumn 2021. This will be an enhancement over the current INNS status.

## 6. Monitoring

### 6.1. Overview

Monitoring is a legal requirement for any species requiring a mitigation licence. It may also be conditioned through planning for other ecological features, such as habitats, especially with the advent of BNG. It is also good practice to demonstrate that intelligence-gathering and decision-making have been good. The CEMP will include compliance monitoring during construction. The HMP will involve condition monitoring during the operational phase.

### 6.2. Habitats

Habitat monitoring will be necessary on the enhanced grasslands, woodland planting, and new ponds. This will evaluate the effectiveness of the post-development habitat provisions in the BNG Metric, which will be agreed through planning. Annual monitoring over five years will be sufficient for grassland and new ponds. Woodland must be monitored annually for disease and other failure over five years. Monitoring should then continue at five-year intervals for 30 years, to observe the establishment of the target habitat. All habitat monitoring must have a feedback loop, to remedy any failure of quality or extent.

### 6.3. Bats

Monitoring of commuting routes will be necessary after development, to check the impacts of the development have been correctly predicted. If any hitherto-unknown impacts are identified, additional *post-facto* compensation will be necessary. New batboxes should be monitored for use.

### 6.4. Badger

Artificial setts must be built as soon as possible, and be monitored to prove use by significant numbers of badgers, prior to application for a Natural England sett closure licence.

### 6.5. Great crested newt

The DLL will not require GCN monitoring on site. However, it will be good practice to monitor GCN presence-absence in the new ponds in post-development years 1, 3, and 5, using eDNA to evaluate the effectiveness of the habitat creation and fish removal works. Population surveys would be useful, but are unlikely to be justified financially.

### 6.6. INNS

It will be good practice to monitor the site for INNS plants on an annual basis, as part of the site's general maintenance programme. This can be conducted by trained non-ecologists. Any INNS invasions must be treated with an Eradication Plan promptly.

## 7. Conclusions

The proposed scheme involves construction of a new prison on existing agricultural land. The impacts on habitats will be fully compensated, with a net gain of 26.29% by area, and 25.26% by length. Embedded mitigation will be conducted for bats, badger, hedgehog, barn owl, other birds, and GCN. Some surveys are not yet complete (bat activity).

The surveys and proposed mitigation adhere to standard mitigation guidance for bats, badger, other mammals, barn owl, birds, GCN, and other species groups.

The CEMP will minimise impacts during construction. The HMP will ensure favourable management of the retained, enhanced, and created habitats in the long term.

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## **9. Appendices**

Appendix 1 – Legislative and policy framework

Appendix 2 – Ramboll PEA, CGO and Ramboll phase 2 ecology reports (badger, reptiles, INNS)

## Appendix 1 – Legislative and policy framework

Many species of wildlife and habitat types in Britain are protected by laws such as the Wildlife and Countryside Act 1981 (as amended) (WCA 1981), Protection of Badgers Act 1992, Habitats Regulations 2019 (post-Brexit), Natural Environment and Rural Communities Act 2006 (NERC Act 2006) (esp. Section 41), and Hedgerow Regulations 1997. Works that may harm or disturb protected species, or damage their habitats, must be impact-assessed by an ecologist, and mitigated or compensated, as necessary.

A PEA is the first stage, typically involving an Extended Phase 1 Habitat Survey to assess the site's ecological value and potential impacts of the proposed development on protected and notable species, habitats and protected sites. This may be followed by 'phase 2' species surveys and/or a full Ecological Impact Assessment (EclA) if required under The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

Buildings, structures, and trees may require a PRA for bats, either as part of a PEA, or as a separate survey. This may result in the need for further surveys to satisfy planning.

Trees can be protected individually or as a group/area by a Tree Preservation Order (TPO) under the Town and Country Planning Act 1990 (as amended) and/or the Town and Country Planning (Tree Preservation) (England) Regulations 2012.

Where a development may have an impact on an internationally-protected site, an 'appropriate assessment' (AA) also known as a 'Habitats Regulations Assessment' (HRA) may be necessary under the Habitats Regulations 2019. The 'competent authority' responsible for this process is usually the LPA, but an ecological consultancy can provide 'shadow HRA screening' and/or a shadow AA/HRA on its behalf.

LPAs also have a duty under the National Planning Policy Framework (NPPF) (MHCLG, 2021) to deliver measurable Biodiversity Net Gain (BNG), i.e. no net loss, plus enhancements, for all developments. BNG must be in addition to any mitigation or compensation provisions required to achieve no net loss. Defra's Biodiversity Metric 2.0 is becoming widely adopted as the standard calculator, using a habitat list based on the new UKHab system rather than traditional Phase 1 habitat system. Its effective use requires proficiency in both UKHab and botanical identification. Metric 3.0 was released in July 2021. The Environment Bill, which is due to be enacted in autumn 2021, will require 10% BNG on all developments, and consistent adoption across the country.

The UK Biodiversity Action Plan (UKBAP) no longer exists as a formal policy instrument, but it continues in spirit. Its Priority Habitats continue to be used in the UKHab and BNG Metric systems, and 'BAP species' are given a degree of protection through Section 41 of the NERC Act 2006.

BREEAM is a sustainability scoring scheme adopted voluntarily by developers. It assesses projects against many factors, awarding credits against ecological categories such as early involvement of an ecologist, and compensation of lost habitats with species-rich landscaping. The key tool is the Change in Ecological Value Calculator. This and other ecological information must be input by a Suitably-Qualified Ecologist (SQE). The available ecological credits are as follows: LE02 (low ecological value site, protecting ecological features), LE03 (minimising impact on ecology), LE04 credits (enhancing site ecology), and LE05 credits (following SQE recommendations, habitat management plan in place).

The Ministry of Justice's New Prisons Programme aims to achieve at least 10% BNG and 'Outstanding' in BREEAM score for all new prisons.



In Leicestershire, the 'UKBAP' system is still formally in place via the *Space for Wildlife - the Leicester, Leicestershire and Rutland Biodiversity Action Plan 2016 - 2026* (LLRBAP) produced by Leicestershire and Rutland Environment Records Centre (Timms, 2016). It enacts Action Plans for a range of county-important habitats and species. As these are a material consideration for stakeholders, they have a degree of *de facto* protection through the planning system.

Intended for  
Mace Group



Date  
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# RAVEN PRELIMINARY ECOLOGICAL APPRAISAL

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# 1. INTRODUCTION

## 1.1 Background

Ramboll UK Limited ('Ramboll') was commissioned by Mace Group (the 'Client'), to provide a Preliminary Ecological Appraisal (PEA) of the Raven development site, located at Her Majesty's Prison (HMP) Gartree, Gallow Field Road, Leicestershire, LE16 7RP (the 'site') in advance of the construction of a new prison at the site. The site is centred upon OS grid reference SP 705 888, as shown in Figure 1 (Appendix 1).

## 1.2 Objectives

The aim of this report is to provide a PEA of the site (CIEEM, 2017<sup>1</sup>). PEA is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a site and its zone of influence (ZOI). The ZOI is the area over which ecological features may be affected by the biophysical changes caused by demolition of the site and its associated activities. The structure and content of the report is based on current ecological report writing guidance (CIEEM 2017<sup>2</sup> and BSI Standards Institution 2013<sup>3</sup>).

The content of this report is based on the findings of:

- A desk study;
- An extended Phase 1 habitat survey; and
- A daytime inspection of trees for bats.

The specific objectives of this report are to:

- Assess the potential for the site to support populations of protected species or species of nature conservation importance<sup>4</sup>;
- Record the main habitats and features of ecological interest on the site;
- Assess the overall ecological importance of the site;
- Provide recommendations for any additional further surveys (if required); and
- Provide recommendations for the protection of the site's ecological features during demolition.

The report is supported by the following appendices:

- Appendix 1: Figures; and
- Appendix 2: Legislation and Policy Context; and
- Appendix 3: Site Photographs.

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<sup>1</sup> CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, Second Edition. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester.

<sup>2</sup> CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

<sup>3</sup> BSI Standards Institution (2013). BS 42020:2013. Biodiversity – Code of Practice for Planning and Development. BSI Standards Limited, London.

<sup>4</sup> The following species are considered to be of nature conservation importance: i) listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; ii) listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP); iii) assessed as a threatened or near-threatened species according to International Union for the Conservation of Nature (IUCN) red list criteria; iv) Red or Amber Listed species in national Species of Conservation Concern assessments; v) listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or vi) endemic to a country or geographic location (including endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

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### 1.3 Proposed Development

This PEA is required in connection with an Outline Planning Application (OPA) for the construction of a new prison at the site comprising:

- House blocks;
- Care and Support Unit (CASU);
- Entrance Hub;
- Support Building;
- Central Services Hub;
- Workshops;
- Kitchen;
- Kennels; and
- Associated hard and soft landscaping, including perimeter fencing.

No detailed plans are available at this stage.

### 1.4 Legislation and Policy Framework

Various legislation and planning policies refer to the protection of wildlife. These are summarised in Appendix 2 but should not be regarded as a definitive legal opinion. When dealing with individual cases, the full texts of the relevant documents should be consulted, and legal advice obtained if necessary.

## 2. METHODOLOGY

### 2.1 Desk Study

The purpose of the desk study was to collect existing baseline data about the site and the ZOI such as the location of designated sites or other natural features of potential ecological value such as woodland and ponds. The following ZOI has been considered:

- Statutory designated sites up to 2km from the site, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR); and
- Records of European Protected Species licences issued within 2km of the site.
- Non-statutory designated sites – Sites of Importance for Nature Conservation (SINCs) – up to 2km from the site;
- Records of protected species up to 2km from the site; and
- International and national statutory designated sites with bats as a qualifying feature for the designation, up to 10km from the site.

Leicestershire and Rutland Environmental Records Centre (LRERC) was contacted to provide details of designated sites and protected species within 2km of the site. Due to data ownership restrictions in the reproduction of the LRERC report, it is not appended to this PEA, but the information provided is summarised in the relevant sections.

In addition, the Multi Agency Geographic Information for the Countryside (MAGIC) website<sup>5</sup> was searched for information on statutory sites. This included a search for European Protected Species licences issued within 2km of the site. Supplementary information on the application site and its surroundings were obtained from aerial images available from Google™ Earth.

No previous ecological reports relating to the site have been supplied by the client or are known to the author.

### 2.2 Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey of the site was undertaken by Jonathan Molesworth of Ramboll on 17<sup>th</sup> September 2020 and 18<sup>th</sup> September 2020. The weather throughout the survey was fine and dry, with light winds.

Jonathan is an ecologist with five years' experience and holder of Natural England and Natural Resources Wales licences for great crested newt (GCN) *Triturus cristatus*, a NE licence for white-clawed crayfish *Austropotamobius pallipes*, associate membership with CIEEM and a first-class degree in Biological Sciences from the University of Liverpool.

The survey involved a site walkover and preliminary assessment of key habitats, land use and ecological features. The main habitats present were recorded using standard Phase 1 habitat survey methodology as described in the Handbook for Phase 1 Habitat Survey (JNCC, 2010<sup>6</sup>) and mapped (Figure 2; Appendix 1). In addition to general habitat classification, a list was compiled of observed plant species (using the nomenclature of Stace, 2010<sup>7</sup>, with common and Latin names referred to in the first instance after which only the common names are used). The Phase 1 habitats were translated into UKHab habitat types using the Natural England metric translation

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<sup>5</sup> www.magic.gov.uk, accessed 11<sup>th</sup> July 2018

<sup>6</sup> Joint Nature Conservation Committee (JNCC) (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC Peterborough

<sup>7</sup> Stace, C. (2010) New Flora of the British Isles 3rd Edition. Cambridge University Press



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tool and were assessed on site using the UK Habitat Classification Field Key. The abundance of each species was estimated for each habitat respectively using standard 'DAFOR' codes:

- D = Dominant.
- A = Abundant.
- F = Frequent.
- O = Occasional.
- R = Rare.

The potential of the site to support protected fauna was evaluated, in order to identify potential ecological constraints, to guide recommendations and determine the requirement for any additional survey(s) or inform mitigation.

Any habitats/ features on the site that provide suitability for refuge/ hibernation, foraging and basking for reptiles were recorded. The suitability of terrestrial habitats on the site for GCN and other widespread species of amphibian was also assessed, see Section 2.3 below.

A search for badger *Meles meles* setts, excavations and other field signs indicative of this species (such as badger paths, scrapings/ snuffle holes, latrines/ dung pits, scratching trees and diurnal resting places) was undertaken.

The suitability of any waterbodies and/ or watercourses on or immediately adjacent to the site for water vole *Arvicola amphibius* and otter *Lutra lutra*, was assessed. Although comprehensive water vole/ otter surveys were not undertaken, any incidental observations of conspicuous field signs indicative of these species were recorded.

An assessment of the suitability of trees and/ or buildings for bats was undertaken, as detailed in Section 2.4 below.

The importance of the site for use by breeding and overwintering birds was evaluated and a search for active/ disused bird nests was undertaken, where appropriate. An inspection of any suitable trees/ buildings was carried out, to assess their potential to provide nesting and/ or roosting opportunities for birds of prey, including barn owl *Tyto alba* and kestrel *Falco tinnunculus*.

The potential of the site to support other protected species and/ or species of conservation concern, including mammals such as hazel dormouse *Muscardinus avellanarius*, hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus* and polecat *Mustela putorius*, and invertebrates (both terrestrial and aquatic), was also assessed.

### 2.3 Great Crested Newt Habitat Suitability Index (HSI)

The potential for any aquatic habitats/ ponds on site to be used for breeding by amphibians was evaluated. This included an assessment of ponds within the site (and ZOI, where feasible) for their suitability to support great crested newt (GCN) using the Habitat Suitability Index (HSI) tool, developed by Oldham *et al.* (2000)<sup>8</sup>.

This assessment uses a scoring system, derived from ten 'Suitability Indices' (SI1 – SI10) which were measured for each pond:

- Pond location;
- Pond area;
- Pond drying;

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<sup>8</sup> Oldham *et al.* (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

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- Water quality;
- Shade (percentage of pond perimeter);
- Impacts of waterfowl;
- Presence of fish;
- Number of ponds within a 1km radius;
- Suitability of surrounding terrestrial habitat; and
- Macrophytes (percentage cover).

An assessment of the results of the HSI was undertaken using standard methodology (Oldham *et al.* 2000 and Amphibian and Reptile Group (ARG), 2010)<sup>9</sup>. The score for each of the suitability indices was then used to ascertain an HSI score for each pond. HSI scores relating to the suitability of the ponds assessed to support GCN are described in Table 2.1.

Table 2.1: Pond Suitability for Great Crested Newt (GCN) in Relation to HSI Score	
HSI Score	Suitability for Supporting GCN
<0.5	Poor suitability
0.5 – 0.59	Below average suitability
0.6 – 0.69	Average suitability
0.7 – 0.79	Good suitability
>0.8	Excellent suitability

This tool has been developed to provide a measure of the suitability of a pond to support GCN and should not be used as a substitute for presence/ likely absence surveys where they are required.

#### 2.4 Preliminary Roost Assessment (PRA)

In accordance with the guidance outlined in *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3<sup>rd</sup> Ed.* (Collins, 2016)<sup>10</sup> all suitable trees and/ or buildings present upon (or immediately adjacent to) the site were subject to a daytime assessment during the Phase 1 habitat survey(s), for their potential to support roosting bats.

All suitable trees were assessed from ground level. Features considered particularly suitable to support roosting bats include natural holes; woodpecker holes; cracks/ splits in major limbs; loose/ peeling bark; partially detached and thick-stemmed ivy; other hollows/ cavities; and existing bat, bird or mammal boxes.

All buildings were subject to a brief external assessment, to identify exterior features considered particularly suitable to support roosting bats and any potential ingress/ egress points. A comprehensive external and internal inspection was not carried out.

Each tree/ building is classified into a category dependent on the presence of features suitable to support bat roosts. The categories assigned are: Confirmed Roost, High, Moderate, Low and Negligible potential for use by bats. Table 2.2 provides criteria for each of these categories.

The value of the site and surrounds for foraging and commuting bats was also evaluated.

<sup>9</sup> ARG UK (2010), ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom

<sup>10</sup> Collins, J. (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition). Bat Conservation Trust (BCT).

Table 2.2: Bat Roost Potential Categories	
Roost Potential	Description
Confirmed	A building, structure or tree that is confirmed to support a bat roost.
High	A building, structure or tree with one or more potential roost site that is obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A building, structure or tree with one or more potential roost site 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.
Low	A building, structure or tree with one or more potential roost site that could be used opportunistically by individual bats.  Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with very limited roosting potential.
Negligible	No potential features likely to be used by roosting bats identified and bats very unlikely to be present.
Notes: Category descriptions are drawn from Collins (2016)	

## 2.5 Assessment of Importance of Ecological Features

The importance of ecological features (i.e. designated sites, habitats and species) identified within the zone of influence has been assessed using a scale that classifies ecological features within a defined geographic context in accordance with CIEEM guidelines (2018<sup>11</sup>). The classification uses recognised and published criteria (e.g. Ratcliffe, 1977.<sup>12</sup>; Wray *et al.* 2010.<sup>13</sup>) where the habitats and site were assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. The following geographic frame of reference has been used for the site:

- International Importance;
- National Importance (England);
- Regional Importance;
- County Importance;
- Local Importance;
- Site Importance (limited to the application site boundary); and
- Negligible Importance.

A wide range of sources can be used to assign importance to ecological features, including legislation and policy. In the case of designated sites, their importance reflects the geographic context of the designation. For example, sites designated as SACs are recognised as being of importance at an International level. Ecological features not included in legislation and policy may also be assigned importance, due to, for example, local rarity or decline, or provision of a functional role for other ecological features. Professional judgement is used to assign such importance.

<sup>11</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute for Ecology and Environmental Management, Winchester.

<sup>12</sup> Ratcliffe, D. (1977) A Nature Conservation Review. Cambridge University Press

<sup>13</sup> Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010) Valuing Bats in Ecological Impact Assessment. In Practice, pp 23-25

## 2.6 Limitations

The extended Phase 1 habitat survey of the site was undertaken in September, which is just within the optimal time of the year for carrying out this type of survey.

An extended Phase 1 habitat survey provides a snapshot of ecological conditions and does not record plants or animals that may be present at the site at different times of the year.

The conclusions presented in this report represent Ramboll's best professional judgment based upon the information available and conditions existing as of the date of this report.

All areas within the outer security fence surrounding HMP Gartree were not surveyed. Several small areas at the northwest extent of the site have been 'claimed' as gardens by adjacent properties on Welland Avenue and were therefore not accessible, along with a plot of enclosed residential housing. These non-surveyed areas are indicated in Figure 2 (Appendix 1). Ponds present on or immediately adjacent to the site were visited during the survey. This species is therefore considered highly unlikely to be present on the site. Ponds within the ZOI but outside of the site boundary were not assessed. Several areas of dense scrub on the site were not fully accessible during the survey. This report does not present data on, or discuss ecological constraints posed by any ecological receptors that may be present in the un-surveyed part(s) of the site or ZOI.

This report has been prepared for the client and shall not be relied upon by any third party unless that party has been granted a contractual right to rely on this report for the purpose for which it was prepared.

Ramboll is satisfied that this report represents a robust appraisal of the site for the purpose of informing the PEA. If any action or development has not taken place on this land within six months of the date of this report, the findings of this survey should be reviewed by a suitably qualified ecologist and may need to be updated.

### 3. BASELINE CONDITIONS

#### 3.1 Desk Study

##### 3.1.1 Landscape Context

The site is set in a rural location, situated approximately 1.7km northwest of the town of Market Harborough, in Leicestershire. An existing prison is located at the northern extent of the site; HMP Gartree, a Category B prison. To the southwest of the site extends a combination of grazed pasture, tall ruderal vegetation and further arable land. To the northwest are residential properties and amenity gardens associated with Welland Avenue, beyond which lies large expanses of arable land. Gallow Field Road borders part of the northern site boundary.

##### 3.1.2 Designated Sites

###### *Statutory Sites*

No SPAs, SACs, SSSIs, NNRs or LNRs are located on or within 2km of the site.

###### *Non-Statutory Sites*

A LRERC search identified seven notified/ candidate/ potential Local Wildlife Sites (LWS), in addition to ten potential/ historic LWS, within 2km of the site. These are listed in Table 3.1. No non-statutory sites are located within the site boundary itself.

Table 3.1: Sites of Importance for Nature Conservation within 2km of the Site				
Name	Type	Distance from Site (m)/ Direction	OSGR	Description
Grand Union Canal Harborough Arm	LWS (notified)	287	SP694898	Canal with stands of emergent vegetation
Lubenham, Pond N of Village	LWS (Potential: historic)	408	SP706881	No recent survey data - not known if the site still has value
Pond in Arable Field	LWS (Potential: historic)	662	SP708878	No recent survey data - not known if the site still has value
Lubenham, South of Foxton Rd	LWS (Potential)	732	SP700877	Two grazed fields, with moderately species-rich grassland (8 indicator spp.) along the banks of a stream, plus three pollarded white willow trees along the stream to the south of the field
Pond	LWS (Potential: historic)	748	SP713881	No recent survey data - not known if the site still has value
Orchard House Ash 1	LWS (notified)	880	SP704875	Mature ash tree
Orchard House Ash 2	LWS (notified)	881	SP703875	Mature ash tree

Foxton Lock Pounds, Disused Canal and Inclined Plane	LWS (Candidate)	897	SP692895	Series of open water lock pounds with carr, reedbeds and <i>Carex</i> swamps; disused canal with species-rich aquatic vegetation, including <i>Potamogeton natans</i> ; semi-improved grassland on inclined plane and associated scrub woodland
Grand Union Canal/ Foxton Locks	LWS (Potential: historic)	936	SP671878	No recent survey data - not known if the site still has value
Pond	LWS (Potential: historic)	1245	SP719897	No recent survey data - not known if the site still has value
Lubenham, Pond S of Laughton Rd	LWS (Potential: historic)	1304	SP693873	No recent survey data - not known if the site still has value
Disused Railway Line	LWS (Potential: historic)	1367	SP674866	No recent survey data - not known if the site still has value
Grand Union Canal	LWS (Potential: historic)	1430	SP694908	No recent survey data - not known if the site still has value
Market Harborough, Leicester Road Verges	LWS (Candidate)	1568	SP724883	Roadside verges on both sides of the road, featuring eight LWS indicator species
Grassland - Neglected Pasture Previously Grazed	LWS (Potential: historic)	1636	SP721876	No recent survey data - not known if the site still has value
River Welland	LWS (Potential: historic)	1811	SP690864	No recent survey data - not known if the site still has value
River Welland	LWS (Potential)	1891	SP740872	Large river

### 3.2 Habitats

The following descriptions of habitats should be read in conjunction with Figure 2: Phase 1 Habitat Plan (Appendix 1).

#### 3.2.1 General Site Description

The site is irregular in shape and occupies an area of approximately 44.5 hectares (ha). The northern portion of the site (occupying an approximate area of 9.8 ha) comprises the existing HMP Gartree; this was not included within the survey area. The southern portion of the site is dominated by improved grassland present across six adjacent pasture fields, bounded by drains,

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scattered trees and hedgerows. In the west of the site are two fields, which are occupied by improved grassland that is subject to regular cutting. Two small stands of woodland are also present, along with further hedgerows and scattered trees. Several buildings are present throughout the site, including a prison store and disused ancillary buildings to the west, along with further disused buildings located centrally within the site. The existing prison (inaccessible to the surveyor) dominates the northern half of the site and is surrounded by a security fence. Carparks and amenity areas associated with the prison are located at the northern extent of the site, along with residential housing (inaccessible to the surveyor).

### 3.2.2 Broadleaved Plantation Woodland

A small, linear stand of broadleaved plantation woodland is between the prison stores and disused ancillary buildings to the east. This runs along a dry ditch and features a defunct hedgerow along the eastern edge. Dominant species are ash *Fraxinus excelsior*, hybrid black poplar *Populus × canadensis* and sycamore *Acer pseudoplatanus*, with occasional willow *Salix spp.*, Swedish whitebeam *Sorbus intermedia*, beech *Fagus sylvatica*, cherry *Prunus spp.* and Italian alder *Alnus cordata*. A shrub layer of willow, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and elder *Sambucus nigra* is evident in the northern half. Bramble *Rubus fruticosus* and dogwood *Cornus sanguinea* features along the southern edge. The ground flora is dominated by bramble, with frequent common nettle *Urtica dioica* and occasional cow parsley *Anthriscus sylvestris* and herb Robert *Geranium robertianum*.

This area meets the UKHab criteria of 'w1h5 – other woodland'.

### 3.2.3 Mixed Plantation Woodland

A small 'L'-shaped stand of mixed plantation woodland exists immediately northwest of the prison stores building. This has several informal paths leading through it. Broadleaved species predominate and include ash, crack willow *Salix fragilis*, hawthorn, hybrid black poplar, horse chestnut *Aesculus hippocastanum*, apple *Malus spp.*, elder, maple and rowan *Sorbus aucuparia*, with ~30% coverage by cypress *Cupressus spp.* and Scots pine *Pinus sylvestris*. Self-set dogwood and dog rose *Rosa canina*, plus occasional bramble, are beginning to form a shrub layer. The ground flora is of very low diversity and dominated by a covering of ivy *Hedera helix*.

This area meets the UKHab criteria of 'w1h5 – other woodland; mixed'.

### 3.2.4 Scattered Scrub

Scattered scrub forms a mosaic with the line of scattered trees (Section 3.2.6) which intervenes the site from the properties associated with Welland Avenue and surrounds the small substation on the site. This contains a mix of bramble, bindweed *Convolvulus spp.*, butterfly bush *Buddleja davidii*, dog rose, willow, hawthorn and elder. A similar area of scrub lies immediately north of the existing prison.

These areas meet the UKHab criteria of 'h3h – mixed scrub'.

Scattered scrub, dominated by bramble, encroaches the plot of poor semi-improved grassland and forms the margins of the northern-most improved grassland field in the western portion of the site.

These areas meet the UKHab criteria of 'h3d – bramble scrub'.

### 3.2.5 Dense Scrub

Dense scrub surrounds the prison stores buildings to the north (separating the carpark from the narrow strip of plantation woodland) and to the west of that building. This is composed of bramble, willow, hawthorn, dog rose, ash, sycamore and occasional gorse *Ulex spp.*, with tall herbs (including common nettle and common mugwort *Artemisia vulgaris*) present around the

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edges. Several raised bunds to the south of the existing prison (most likely containing debris/waste) are populated with dense scrub, dominated by bramble and with elder, willow, hawthorn, ash and snowberry *Symphoricarpos albus*, along with creeping thistle *Cirsium arvense* and common nettle, and semi mature trees.

These areas meet the UKHab criteria of 'h3h – mixed scrub'.

Dense scrub, dominated by blackthorn and with frequent hawthorn and occasional dog rose, forms part of the northern site boundary and encroaches into the grassland.

This area meets the UKHab criteria of 'h3a6 – blackthorn scrub'.

### 3.2.6 Scattered Trees

Numerous scattered trees/ lines of trees are present throughout the site, and include:

- Two stands of scattered trees, mostly semi and early mature, located immediately north of the existing prison in the carpark area. Species include hybrid black poplar, Swedish whitebeam, common lime *Tilia × europaea*, ash, hazel *Corylus avellana*, field maple *Acer campestre*, Norway maple *Acer platanoides*, horse chestnut, beech, cherry, willow *Salix spp.* and false-acacia *Robinia pseudoacacia*, with an understorey of mown amenity grassland.
- A linear belt of trees, from young to mature, bordering a track on the western site boundary, between the site and the properties associated with Welland Avenue and surrounding the small substation (see Section 3.2.4). Species include hybrid black poplar, Leyland cypress *Cupressus × leylandii*, ash, sycamore, silver birch *Betula pendula*, maple *Acer spp.*, cherry, common lime, beech and rowan. These trees are mostly intermixed with scattered scrub, dominated by bramble and dog rose.
- Planted trees bordering both sides of Welland Avenue in the southwest portion of the site and bordering the contractor entrance at the northeast extent of the site, ranging from under-mature to mature. Species include Swedish whitebeam, Norway maple, sycamore, common lime, beech, ash, cherry, common hornbeam *Carpinus betulus*, common whitebeam *Sorbus aria*, rowan, pedunculate oak *Quercus robur*, red oak *Quercus rubra*, Turkey oak *Quercus cerris*, crab apple *Malus sylvestris*, hawthorn, blackthorn, horse chestnut and willow, with trees ranging from young to mature.
- A line of predominantly early mature hybrid black poplar trees with occasional crack willow and Scots pine between two of the fields in the southern portion of the site, in addition to several small groups of willow, maple, beech, silver birch, common whitebeam, Swedish whitebeam and common alder *Alnus glutinosa* trees throughout the surrounding fields in the southern portion of the site.
- Small clusters of trees within fields in the western portion of the site and surrounding disused prison ancillary buildings throughout the site, containing ash, hawthorn, sycamore, common lime, common whitebeam, common hornbeam, willow, red oak, copper beech *Fagus sylvatica f. purpurea* and Italian alder.
- Numerous other trees within hedgerows and along field boundaries throughout the site, including a scattered row of Lombardy poplar *Populus nigra var. italica* along the eastern site boundary and mature ash trees within scrub bounding the site to the northwest.

All of these trees meet the UKHab criteria 'w1g6 – line of trees'

### 3.2.7 Improved Grassland

The dominant habitat throughout the site is improved grassland, which is present across eight fields which are to the south and southwest of the existing prison.



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The six fields constituting the main southern portion of the site are subject to relatively high levels of grazing pressure from cattle and are consequently of a short sward-height. The improved grassland throughout these fields is dominated by perennial rye-grass *Lolium perenne*, with frequent Yorkshire-fog *Holcus lanatus*, white clover *Trifolium repens*, and occasional creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, creeping thistle, common nettle and common dandelion *Taraxacum officinale*.

There are two fields in the western extent of the site, to the north and west of the prison stores building. This improved grassland appears to be regularly cut and is therefore also of a short sward-height. Perennial rye-grass is dominant, with frequent Yorkshire fog and creeping bent *Agrostis stolonifera*, occasional cock's-foot *Dactylis glomerata*, frequent rough meadow grass *Poa trivialis*, white clover, red clover *Trifolium pratense*, greater plantain *Plantago major*, and occasional broad-leaved dock, common nettle, creeping thistle, common dandelion and creeping buttercup.

These areas meet the UKHab criteria of 'g4 – modified grassland'.

### 3.2.8 Poor Semi-Improved Grassland

A small area of poor semi-improved grassland surrounds two disused ancillary prison buildings in the western portion of the site, east of the prison stores (TN1; TN2). This grassland is 'tussocky' and of a moderate sward-height owing to neglect, and is dominated by false oat-grass *Arrhenatherum elatius*, with abundant cock's-foot, frequent Yorkshire-fog, cow parsley, common nettle and creeping thistle, occasional common hogweed *Heracleum sphondylium*, white clover, creeping buttercup, common dandelion, ribwort plantain *Plantago lanceolata* and cleavers *Galium aparine*, and rare occurrences of spear thistle *Cirsium vulgare*.

Narrow (<1m) strips of poor semi-improved grassland are also present along some of the fences bounding the six grazed fields in the southern portion of the site.

These areas meet the UKHab criteria of 'g3c – other neutral grassland'.

### 3.2.9 Tall Ruderal Vegetation

The fringes/ corners of some of the fields in the south are occupied by tall ruderal vegetation, predominantly creeping thistle and common nettle, with occasional bittersweet *Solanum dulcamara*, broad-leaved dock and bristly oxtongue *Helminthotheca echioides*, as well as common grasses including cock-foot and false oat-grass.

These areas meet the UKHab criteria of 'g3c – other neutral grassland'.

The edges of the wide strip of hardstanding bisecting the southern portion of the site are colonised by ruderal herbs including common nettle, redshank *Persicaria maculosa* and Red Goosefoot *Oxybasis rubra*, growing on manure piles (TN3).

This area meets the UKHab criteria of '17 – ruderal/ ephemeral'.

### 3.2.10 Amenity Grassland

Several small plots of amenity grassland feature throughout the site, including a ~80m<sup>2</sup> square of amenity grassland adjacent to properties on Welland Avenue used for recreation, 2-8m wide strips of amenity grassland along much of the outer security fence surrounding HMP Gartree and the parallel pathways, and several small 'islands' of amenity grassland located between individual carparks immediately north of the existing prison and beneath/ surrounding stands of scattered trees in this area. All amenity grassland on the site is managed intensively (mown to a very short sward-height) and contains common and widespread species of grass including perennial rye-grass, false-oat grass, Yorkshire-fog and annual meadow grass *Poa annua*.

These areas meet the UKHab criteria of 'g4 – modified grassland'.

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### 3.2.11 Open Water

There are four ponds on the site; P1 (TN4), P2 (TN5), P3 (TN6) and P4 (TN7).

P1 (SP 70280 88712) is situated in the southern portion of the site within a grazed field. This pond is approximately 60m<sup>2</sup> in size, holds a small volume of muddy water and is surrounded by scattered hawthorn trees. The banks are predominantly bare due to significant poaching by cattle. Occasional soft rush *Juncus effusus* features in the margins.

This pond meets the UKHab criteria of 'r1a6 – other eutrophic standing waters'.

P2 (SP 70142 88740), P3 (SP 70083 88695) and P4 (SP 69987 88617), all situated in the southwest portion of the site, were all found to be completely dry and overgrown with willow, ash, hawthorn and blackthorn trees.

### 3.2.12 Running Water (Wet Ditches)

A small ditch flows northeast to southwest beneath the line of poplar trees in the southern portion of the site. This ditch held only a small volume of water at the time of survey and vegetation is dominated by soft rush in the channel and on the northwest bank, with common nettle dominating the southeast bank (TN8). This ditch continues north, where it is un-shaded and dominated by poor semi-improved grassland on both sides (TN9), dominated by cock's-foot, perennial rye-grass, false oat-grass and tufted hair-grass *Deschampsia cespitosa*, with frequent greater willowherb *Epilobium hirsutum*, common hogweed *Heracleum sphondylium*, hemp-nettle *Galeopsis spp.*, smooth sow-thistle *Sonchus oleraceus* and common knotgrass *Polygonum aviculare*.

This ditch meets the UKHab criteria of 'r2b – other rivers and streams'.

### 3.2.13 Dry Ditch

Two dry ditches run perpendicular to the main flowing ditch in the southern half of the site; one lies within a defunct hedgerow and the other along the edge of a grazed field. There is a third dry ditch within the linear stand of broadleaved plantation woodland, in the western portion of the site, which continues along part of the western site boundary where it forms a boundary between the site and adjacent arable field.

There is no applicable UKHab criteria for dry ditches.

### 3.2.14 Hedge with Trees

A mature and intact hedgerow bounds the site to the far west, dominated by hawthorn and with occasional elder. Several mature ash trees are scattered along this hedgerow.

This hedgerow meets the UKHab criteria of 'h2a – hedgerow (priority habitat)'.

### 3.2.15 Defunct Hedge

There is a mature and defunct hedgerow between the two fields in the western portion of the site, dominated by hawthorn and with occasional elder. The understorey features predominantly cow parsley, spear thistle and bittersweet. This hedgerow has been laid in the past but is likely to develop into a treeline if left unmanaged. A similar hedgerow, but including blackthorn and dog rose, bounds fields immediately south of the existing prison and lies either side of a dry ditch.

Further defunct hedgerows bound Welland Avenue to the west, beyond the line of scattered trees, and bound the field immediately east of Welland Avenue. Both contain hawthorn and blackthorn.

Several defunct hedgerows exist at the northern extent of the site, bounding the groups of scattered trees and within the prison carpark areas. These include hawthorn-dominated hedgerows with elder, ash and sycamore.

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These hedgerows meet the UKHab criteria of 'h2a – hedgerow (priority habitat)'.

Several short spans of cherry laurel *Prunus laurocerasus* hedgerow exist around the carpark at the northern extent of the site (TN30).

This meets the UKHab criteria of 'h2b – other hedgerows'.

### 3.2.16 Hardstanding

Various areas of hardstanding feature throughout the site, and include:

- Staff, visitor and overspill carparks immediately north of the existing prison, outside of the security fence.
- Approximately four metre wide pathways surrounding the existing prison, offset from the outer security fencing by approximately eight meters.
- Carpark/ yard areas associated with the prison stores building and two nearby, disused ancillary prison buildings to the southwest of the existing prison.
- Portions of Welland Avenue and Stuarts Crescent, to the north and west of the existing prison, along with a contractor access road at the northeast extent of the site.
- Various farm tracks intervening fields in the southern portion of the site and an approximately 20m wide strip of neglected hardstanding/ bare ground which bisects the largest field through the centre.
- An area of neglected hardstanding immediately south of the existing prison, upon which several disused buildings are located.

There is no applicable UKHab criteria for hardstanding.

### 3.2.17 Buildings

Ten buildings are present throughout the site, including four small buildings within the carpark immediately north of the existing prison, the prison stores buildings and disused ancillary buildings to the west, and three derelict farm buildings to the south.

These buildings meet the UKHab criteria of 'u1b5 – Buildings'.

### 3.2.18 Fence

Numerous stock-proof fences compartmentalise the fields on the site and border the various farm tracks. Metal palisade fencing surrounds the substation and prison stores.

These meet the UKHab criteria of 'u1e – Built linear features'.

## 3.3 Species

### 3.3.1 Invertebrates

LRERC returned a total of seven records of Invasive Non-Native Species (INNS) of invertebrate within 2km of the site, predominantly harlequin ladybird *Harmonia axyridis*, in addition to a single record for the invasive freshwater amphipod *Crangonyx pseudogracilis/ floridanus*.

The poor semi-improved grassland, ditches, woodland, scrub and scattered trees could support a reasonably diverse population of common invertebrate species. A poor assemblage of invertebrates was noted in and around P1. Several small white *Pieris rapae* butterflies were observed during the survey. The site is unlikely to support populations of rare or protected invertebrates due to the limited suitable habitat.

### 3.3.2 Amphibians

According to MAGIC, two EPS licences have been obtained for GCN within 2km of the site:

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- 2016-25559-EPS-MIT: licence to damage/ destroy the resting place of GCN for a site approximately 1.25km east (21/09/2016 to 31/08/2018).
- 2017-28417-EPS-MIT: licence to damage/ destroy the resting/ breeding place of GCN for a site approximately 1.05km east (05/05/2017 to 01/07/2023).

LRERC returned a total of 136 records of amphibian species with 2km of the site, 61 of which are for GCN. The nearest GCN records originate approximately 165m east of the site, comprising a series of four mitigation ponds (created as mitigation for large residential and commercial developments to the southeast, on the outskirts of Market Harborough) all found to support small breeding populations of GCN in 2018. Further ponds located approximately 245m and approximately 420m south supported populations of GCN in 2008. Smooth newt *Lissotriton vulgaris* and Common frog *Rana temporaria* have also been recorded in the GCN mitigation ponds approximately 165m east of the site in 2018, and numerous records of both species originate to the south and southeast. Five records of common toad *Bufo bufo* were returned, the nearest of which originates approximately 1.1km to the east, recorded in 2016.

Four ponds (P1 – P4) were identified upon the site itself. P1 provides poor suitability for GCN (Figure 3.2 below) and P2 – P4 were dry at the time of survey and appear to have been so for some time. Pond 1 does, however, provide suitability for breeding common frog and common toad.

Habitat Suitability Index			SI value	
SI1. Map location	<b>A/B/C</b>		A	1.00
SI2. Surface area	<b>rectangle/ellipse/irregular</b> length (m) width (m) OR estimate (m <sup>2</sup> ) if irregular  <i>area (m<sup>2</sup>) =</i>	ellipse		
		10		
		6		
		47.1	0.09	
SI3. Dessication rate	<b>never/rarely/sometimes/frequently</b>	frequently		0.10
SI4. Water quality	<b>good/moderate/poor/bad</b>	poor		0.33
SI5. Shade	% of margin shaded 1m from bank	20%		1.00
SI6. Waterfowl	<b>absent/major/minor</b>	minor		0.67
SI7. Fish population	<b>absent/possible/minor/major</b>	absent		1.00
SI8. Pond density	number of ponds within 1km	13		1.00
SI9. Terrestrial habitat	<b>good/moderate/poor/isolated</b>	poor		0.33
SI10. Macrophyte cover	%	50%		0.32
			<b>HSI =</b>	<b>0.43</b>
<i>Use provisional HSI value if above 0.75</i>			provisional HSI =	0.39
			Date undertaken	Sept 2020

Figure 3.2: Habitat Suitability Index (HSI) Assessment for P1

In addition to the four ponds (P1 – P4) identified upon/ directly adjacent to the site itself, there are 19 further ponds within 500m of the site, some of which are known to support populations of GCN. These are summarised in Table 3.3 (with supporting information taken from data supplied by LRERC).

Pond	OSGR	Status
P1	SP 70280 88712	Poor suitability for GCN
P2	SP 70142 88740	Dry
P3	SP 70083 88695	Dry
P4	SP 69987 88617	Dry
P5	SP 70472 89418	No data
P6	SP 70211 89649	No data
P7	SP 70053 89211	No data
P8	SP 69804 88792	No data
P9	SP 69781 88663	No data
P10	SP 69492 88298	No data
P11	SP 69899 88171	No data
P12	SP 70539 88258	Medium population of GCN in 2008
P13	SP 70692 88110	Small population of GCN in 2008
P14	SP 70877 88716	No data
P15	SP 71228 88616	GCN present in 2008 (population size unknown)
P16	SP 71117 88821	Mitigation pond with small population of GCN in 2018
P17	SP 71146 88842	Mitigation pond with small population of GCN in 2018
P18	SP 71104 88861	Mitigation pond with small population of GCN in 2018
P19	SP 71078 88908	Mitigation pond with small population of GCN in 2018

GCN make use of breeding ponds during the breeding season (March to June inclusive) and at other times of year may be present in suitable terrestrial habitats up to 500m from breeding ponds.

Suitable terrestrial habitat for GCN is present within the site, notably poor semi-improved grassland, hedgerows, scrub and woodland, which provide shelter and foraging habitat for GCN and other widespread amphibian species. Several potential hibernacula are present on the site, notably large piles of debris/ materials immediately south of the existing prison which have scrubbed over (TN29). The hardstanding, amenity grassland and grazed improved grassland habitats are considered to provide sub-optimal habitat for GCN/ amphibians.

Given the known existence of small populations of GCN in seven ponds within 500m of the site, some of which are very well connected with the site, it is considered likely that this species utilises terrestrial habitats on the site. Other widespread and common species of amphibian, such as smooth newt, have also been recorded in ponds within 500m of the site and are therefore considered likely to be present within the on-site terrestrial habitats.

It is also considered possible that common toad and common frog utilise aquatic habitats on the site (P1) for breeding.

### 3.3.3 Reptiles

LRERC returned seven records of grass snake *Natrix helvetica* within 2km of the site, the nearest of which originates approximately 315m east of the site, recorded in 2008. The most recent

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records of this species are from 2014, with two individuals recorded at a property approximately 860m north of the site. No records of any additional reptile species were returned.

Habitats suitable for supporting populations of grass snake and slow-worm *Anguis fragilis* are present on the site, predominantly areas of dense and scattered scrub, poor semi-improved grassland (including field margins), ditches and woodland edge habitats. Several potential hibernacula are also present on the site, notably large piles of debris/ materials immediately south of the existing prison which have scrubbed over (TN29). The improved grassland within the main body of grazed fields in the southern portion of the site, along with carpark/ recreational areas at the northern extent of the site, are subject to high levels of disturbance and considered unlikely to support permanent reptile populations.

### 3.3.4 Birds

LRERC returned numerous records of birds within 2km of the site and suitable foraging habitat is present at the site for the following species: barn owl, peregrine falcon *Falco peregrinus*, red kite *Milvus milvus*, cuckoo *Cuculus canorus*, common linnet *Linaria cannabina*, bullfinch *Pyrrhula pyrrhula*, fieldfare *Turdus pilaris*, yellowhammer *Emberiza citronella*, song thrush *Turdus philomelos*, dunnoek *Prunella modularis*, redwing *Turdus iliacus* and skylark *Alauda arvensis*.

Evidence was found indicating use of the site by roosting barn owl(s); a regular roost in a mature ash tree within a hedgerow along part of the southwest site boundary underneath which 15 old and fresh barn owl pellets, several feathers and droppings were found (TN15); and an occasional owl roost (could not be confirmed as barn owl) in another nearby ash tree (TN14) underneath which three old pellets were found, along with droppings. Several other trees on the site provide potential roosting/ nesting sites for barn owl and other birds of prey (TN16; TN18). Derelict farm buildings immediately south of the existing prison provide limited suitability for barn owl, given their small size or limited opportunity for ingress. Evidence of barn owl breeding was not identified during the extended Phase 1 habitat survey but should not be ruled out. A red kite was observed foraging over fields in the southern portion of the site during the survey.

Suitable nesting habitat for passerine bird species were identified throughout the site, notably the woodland, scattered trees, scrub and hedgerows, with numerous disused bird nests found.

The site is unlikely to support significant populations of ground nesting birds or over-wintering birds due to the intensive management of the fields.

### 3.3.5 Bats

According to MAGIC, one EPS licence has been obtained for bats within 2km of the site:

- 2016-26802-EPS-MIT: licence to damage/ destroy the resting place of common pipistrelle *Pipistrellus pipistrellus* and brown long-eared bat *Plecotus auritus* for a site approximately 1.3km south (25/01/2017).

One statutory designated site with bats as an important feature was identified within a 10km radius of the site:

- Kilby-Foxton Canal SSSI, located approximately 2.5km northwest (SP 611 969 to SP 699 899) features an established and well-documented colony of Daubenton's bat *Myotis daubentonii* in Fleckney Tunnel.

LRERC returned a total of 92 records of bats within 2km of the site, with the majority of records comprising common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bats (BLE) *Plecotus auratus* and noctule *Nyctalus noctula*, in addition to two records of Daubenton's bat, one record of natterer's bat *Myotis nattereri* and four records of Nathusius's pipistrelle *Pipistrellus nathusii*. A brown long-eared bat was observed on the site itself (recorded clinging to the prison wall) in 2006, a nearby roost supporting an individual of

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unknown species was recorded at Welland Avenue during the same year, and soprano/ common pipistrelles have been recorded on Gallow Field Road and Foxton Road, immediately adjacent to the site. Nathusius's pipistrelle and Myotis species of bat were recorded within 400m of the site, in the Airfield Farm area, in 2008/9. Most remaining bat records originate from the villages of Lubenham and Foxton, and from the western edge of Market Harborough, recorded as recently as 2020.

Three buildings on the site provide bat roosting potential:

- The northern-most of the two disused prison ancillary buildings to the west of the existing prison provides low bat roosting potential, by virtue of crevices between the facias and external walls on the southwest/ northeast elevations (TN1).
- The southern-most ancillary building provides low bat roosting potential, by virtue of mortar gaps on the southeast gable end (TN2).
- A small, disused and flat-roofed brick building to the south of the prison, located in a small stand of willow trees, provides low bat roosting potential due to four vents inside the easily accessible building which provide access to the cavity walls (TN10). A single, old bat dropping (commensurate with that of pipistrelle species) was found on the floor inside.

Eight trees upon or directly adjacent to provide bat roosting potential:

- Trees TN12, TN17, TN19, TN20 and TN28 provide low bat roosting potential.
- Trees TN11, TN13, TN14 and TN15 provide moderate bat roosting potential.

The network of hedgerows, ponds, ditches, woodland, grassland and scrub habitats across the site are likely to provide opportunities for foraging and commuting bats as part of the wider foraging resources in the locality.

### 3.3.6 Badger

LRERC returned a total of 102 badger records of within 2km of the site. Main setts have previously been recorded approximately 315m to the east, 305m south and 430m north, respectively. The highest concentrations of setts exist to the southeast of the site, although some on the outskirts of Market Harborough may have subsequently been closed under licence to facilitate construction within the nearby Strategic Development Area.

Three badger setts are present on the site:

- A large, active main breeding sett (Sett 1) is located within a stand of tall ruderal vegetation in a large field a short distance south of the existing prison (TN21). Sett 1 features 21 entrances (facing in various directions) which spread north from the main body of the field up to the farm track immediately north, with at least three of the entrances undermining the boundary fence/ track (with anecdotal evidence of the track having previously been repaired with rubble). Eighteen of the sett entrances displayed signs indicating current use by badger(s), including badger hair, fresh earth removal, polished soil in the bases/ sides of the tunnels and bedding material. Additional signs included badger paths leading between the entrances and radiating into the surroundings, numerous large and fresh latrines in the vicinity of the sett and foraging scrapes/ snuffle holes near to the sett entrances. Several collapsed entrances were also noted.
- An active, single entrance outlier sett (Sett 2) is located within a dry ditch/ hedgerow immediately north of Sett 1 (TN22). The west-facing entrance displayed signs indicating current use by badger(s), including badger hair, a large and fresh spoil heap with badger paw prints, a badger path leading into the entrance and through the middle of the hedgerow and two fresh badger latrines in the near vicinity.

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- A disused outlier sett (Sett 3) is located with dense scrub to the east of Sett 1 (TN23). Two south-facing entrances, neither of which displayed signs indicating current use by badger(s), were identified beneath an elder tree. It is possible that further entrances are located within the scrub; however, it was too dense to be fully investigated during the survey. Several rabbit burrows are also located in the vicinity of Sett 3.

An exposed drainage pipe situated in a field directly south of the existing prison is used as a badger path below ground and leads into a dry ditch within the nearby hedgerow (TN31). This is not considered a sett.

Numerous badger paths, foraging signs and latrines were noted throughout the remainder of the site, with notable examples including a badger path leading along the eastern edge of the broadleaved plantation woodland upon which numerous fresh badger hairs were found, along with a nearby latrine (TN24); a very large latrine comprising at least 10 dung pits beneath a lime tree bordering Welland Avenue (TN25); a large latrine and snuffle holes beneath trees surrounding the substation (TN26); badger paths and snuffle holes/ scrapes around the margins of fields in the southern/ eastern portions of the site; and well-worn badger paths leading alongside the ditch/ line of trees in the southern portion of the site and radiating into the adjacent fields (TN27).

### 3.3.7 Water Vole

LRERC returned a single record of water vole within 2km of the site, originating from the Grand Union Canal approximately 980m northwest of the site, recorded in 2019.

There is a large ditch on the site, bisecting the southern portion of the site, with different conditions observed in the northern and southern halves. The southern half (TN8) has poorly-developed bankside and aquatic vegetation, features a poor variety of food plants and shallow sloping banks which appear to have been subject to erosion, and is unlikely to have water present all year round or of a suitable depth. The northern half (TN9) features a greater variety of food plants and better-developed bankside vegetation, although the water levels are still extremely low. The ditch as a whole is highly isolated. The ditch is therefore considered to be unsuitable for water vole overall.

P1 is considered unsuitable for water vole due to the lack of suitable bankside or aquatic vegetation and high degree of poaching by cattle. All other ponds/ ditches on the site are completely dry.

No evidence of water vole was noted from accessible banks of the ditch/ P1 during the survey.

It is therefore considered unlikely that this species is likely absent from the site.

### 3.3.8 Otter

LRERC returned 13 records of otter within 2km of the site, the nearest of which was recorded at Foxton Bridge on the Grand Union Canal approximately 880m north of the site, recorded in 2015. All remaining otter records originate between 1km and 2km of the site.

The wet ditches and pond on the site are sub-optimal for otter(s) given their high degree of disturbance, small sizes, low water levels and isolation from the wider landscape. No significant opportunities for holt-building or foraging were identified on the site.

It is therefore considered unlikely that this species is likely absent from the site.

### 3.3.9 Hazel dormouse

LRERC did not return any records for hazel dormouse within 2km of the site.



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Habitat with a limited degree of suitability for dormouse is present within the hedgerows and scrub habitats on the site, which could provide a potential corridor around the site and into the surrounding area. However, no evidence of dormouse was observed during the survey. The stands of plantation woodland are considered unlikely to be suitable due to their small size, limited age structure and lack of a developed shrub layer. Furthermore, no significant stands of woodland are located near to, are or well connected with, the site.

Dormouse are therefore considered likely to be absent from the site.

### 3.3.10 Hedgehog

LRERC returned 20 records of hedgehog within 2km of the site, the nearest originating approximately 610m north of the site and recorded in 2018. All remaining hedgehog records originate between 1.1km and 2km of the site.

The site contains suitable habitat for hedgehogs throughout, most notably hedgerows, woodland and scrub in the western portion of the site, and debris/ scrub to the south of the existing prison. Short-sward, improved grassland provides good opportunities for foraging.

### 3.3.11 Invasive Species

LRERC returned records for a number Invasive Non-Native Species (INNS) within 2km of the site. Some of those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) include Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum* and montbretia *Crocsmia x crocosmiiflora*.

No INNS listed on Schedule 9 were recorded on or adjacent to the site during the survey; however, cherry laurel (a vigorous non-native shrub) was recorded in short spans of managed hedgerow at the northern extent of the site.

## 3.4 Assessment of Important of Ecological Features

Table 3.4 presents the ecological importance of habitats present on the site, in accordance with CIEEM guidance. A preliminary assessment of the importance of the site for fauna is also included.

Table 3.4: Ecological Importance of Features Present on the Site (in accordance with CIEEM Guidelines)		
Feature	Ecological Importance	Rationale
Broadleaved plantation Woodland	Local level	Moderate age range and structural diversity, and a reasonable range of tree species, but diversity of ground flora is poor and the woodland occupies a small area. High levels of disturbance nearby. Likely to be of value to amphibians, bats, invertebrates, reptiles and nesting birds and contributes to the biodiversity value of the site.  Broad-leaved woodland is listed as a Leicestershire BAP habitat.
Mixed plantation Woodland	Site level	Limited age range and structural diversity, diversity of ground flora is poor and the woodland occupies a small area. High levels of disturbance nearby. Likely to be of value to amphibians, bats, invertebrates, reptiles and nesting birds and contributes to the biodiversity value of the site.

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Table 3.4: Ecological Importance of Features Present on the Site (in accordance with CIEEM Guidelines)		
Scattered Trees	Local level	Various ages, with several mature specimens, and a mixture of native and non-native species. Several trees provide roosting potential for bats, roosting/ nesting opportunities for barn owl and nesting/ foraging opportunities for passerine birds. Deadwood/ rot may provide opportunities for common invertebrates. Mature trees are listed as a Leicestershire BAP habitat.
Dense/ Scattered Scrub	Site level	Widespread and easily replaced habitat. Provides habitat for birds, amphibians, reptiles and common invertebrates.
Improved Grassland	Site level	Widespread and easily-replaced habitat. Provides habitat for birds, amphibians, reptiles and common invertebrates.
Poor Semi-Improved Grassland	Site level	Widespread and easily-replaced habitat and contains a low diversity of herbs and grasses. May provide foraging opportunities for barn owl/ birds of prey and further opportunities for reptiles, amphibians and common invertebrates.
Tall Ruderal Vegetation	Site Level	Widespread and easily-replaced habitat with commonly occurring species. Provides habitat for common invertebrates and birds, and provides physical cover for Sett 1.
Amenity Grassland	Site level	Widespread and easily-replaced habitat, heavily mown and of low species diversity.
Open Water	Site level	P1 on the site has poor suitability for GCN and is heavily poached by cattle; however, it may be used by common toad and common frog, and may support a low diversity of common invertebrates. Connectivity to other ponds in the wider landscape and nearby terrestrial habitats is poor. Standing eutrophic water is listed as a Leicestershire BAP habitat.
Running Water (Wet Ditches)	Site level	Flowing ditch on the site is unsuitable/ sub-optimal for water vole throughout its length; however, it may be used as a commuting/ foraging feature by bats and provide habitat for common invertebrates.
Dry Ditch	Site level	Dry ditches within hedgerows, woodland and along farm tracks do not provide suitability for water vole, but do provide potential ecological corridors for other species, including badgers, hedgehogs and birds.
Hedgerows	Local level	Provide corridors and habitat links, as well as commuting and foraging habitat for bats, and good opportunities for nesting birds, hedgehogs and amphibians. Most hedgerows on the site contain a reasonable selection of native woody species. Hedgerows are listed as a Leicestershire BAP habitat.

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Table 3.4: Ecological Importance of Features Present on the Site (in accordance with CIEEM Guidelines)		
Buildings	Site level	Whilst the buildings do not significantly contribute to the ecological importance of the site, three buildings provide low bat roosting potential.
Invertebrates	Site level	The woodland, scattered trees, scrub, ditch and grassland habitats provide suitability for a common assemblage of invertebrates.
Great Crested Newt/ Other Amphibians	Local level	There are known small and medium populations of GCN in several ponds within 500m of the site and numerous other records of GCN in the surrounding area. Ponds on the site itself are unlikely to be suitable for GCN although further survey is required to confirm this. GCN if present would be found within terrestrial habitats on site, notably hedgerows, scrub, woodland and poor semi-improved grassland.
Reptiles	Site level	The site contains habitat capable of supporting populations of common reptiles and grass snake have been recorded in the local area. The status of reptiles on site is not known; however, site level importance is estimated at this stage, although further survey is required to confirm this.
Barn Owl	Local level	The site is utilised by roosting barn owl(s) and is likely to support other owl species/ birds of prey for roosting, nesting and/ or foraging. It is possible that the site is important for a local pair/ population of barn owls, although further survey may be required to confirm this.
Birds	Site Level	Woodland, hedgerows and scrub habitats provide nesting and foraging opportunities for passerine bird species. Foraging opportunities are also present for birds of prey. The site is unlikely to support significant populations of ground nesting or over-wintering birds.
Bats	Local level	Eight trees and three buildings on the site provide potential for roosting bats. The network of hedgerows, woodland, scrub and ditch habitats throughout the site are likely to be used by bats for foraging and commuting, potentially between roosting sites in the local area. The roosting and foraging status of bats on the site is not known; however, local level importance is estimated given the extent of suitable habitat on the site, although further survey is required to confirm this.
Badger	Site level	Three badger setts are present on the site, including Sett 1 – a large, active main breeding sett. Numerous badger paths radiate throughout the site and into the surrounding landscape, and other setts are present off-site, in the local area.
Water Vole	Negligible	No evidence of water vole was identified at the site and the habitats (ditches/ ponds) are unsuitable for this species. This species is considered likely absent.

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Table 3.4: Ecological Importance of Features Present on the Site (in accordance with CIEEM Guidelines)		
Otter	Negligible	Habitats on the site are considered unlikely to support this species, no field signs were noted and this species is considered likely absent.
Hazel Dormouse	Negligible	Hedgerow and scrub habitats are of reasonable suitability although the woodland areas are small and lack a developed shrub layer. No records of hazel dormouse were obtained from the surrounding area, and this species is considered likely absent.
Hedgehog	Site level	Scrub, woodland, hedgerows and grassland habitats provide refuge and foraging opportunities for this species, and there are records in the local area.

## 4. ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

This section collates the information gained during the desk study and extended Phase 1 habitat survey, presents potential ecological constraints and makes recommendations for mitigation. It has been prepared in the context of the proposed construction of a prison at the site but has not been based on any specific designs at this stage, other than initial proposals. It is not yet known to Ramboll when the proposed development will commence.

### 4.1 Statutory Designated Sites

No statutory designated sites were identified within 2km of the site; therefore, no direct or indirect impacts upon such designations are anticipated.

### 4.2 Non-Statutory Designated Sites

The Grand Union Canal Harborough Arm (notified LWS) and Lubenham, Pond North of Village (notified LWS) designations are both situated 287m from the site. At this distance, direct and indirect construction impacts are deemed possible, from dust, pollution or increases in traffic volume.

A Construction Environmental Management Plan (CEMP) should be produced to include measures to protect these sites, such as preventing contaminated run-off and reducing dust during the construction phase. A suitably qualified Ecological Clerk of Works (ECoW) should input into the CEMP to ensure appropriate mitigation measures are in place to protect these sites.

### 4.3 Habitats

The broadleaved woodland, hedgerows, pond and mature trees on the site are ecologically valuable, potentially used by a range of fauna and listed in the local BAP; therefore, to minimize the impacts of any future development, it is recommended that these habitat types are retained wherever possible. Replication of mature trees/ woodland habitats can take several years to achieve and may not fully mitigate the loss.

Development taking place in close vicinity to any retained vegetation/ features, such as hedgerows, should include protection measures, including the provision of appropriate protective fencing to prevent trampling of vegetation or inundation by construction and excavated materials. The potential for temporary impacts can be controlled through a CEMP. This could include dust control measures to prevent construction dust impacting the retained habitats.

Construction works in the vicinity of existing trees and hedgerows to be retained could damage the trees or their roots, possibly leading to significant adverse impacts upon the trees (potentially premature death). Therefore, retained trees and hedgerows should be protected where possible during construction activities in accordance with BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction' (for instance with fencing), in order to reduce the possibility of any damage, to both crown and roots of the trees.

It is recommended that a Biodiversity Net Gain (BNG) Assessment is undertaken at the earliest opportunity to assess if the development can achieve a net gain on site or whether off-site compensation is required. This is likely to be required before the planning authority will decide to grant planning permission and can take several months of negotiations. BNG is a process whereby development leaves biodiversity in a better state than before and is a policy requirement under the National Planning Policy Framework (NPPF; 2019)<sup>14</sup>. BNG will soon become a legal requirement in England with the Environment Bill (2020) setting out a mandatory 10% net gain in biodiversity for new development. The BNG process is governed by a set of UK

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<sup>14</sup> Ministry of Housing, Communities & Local Government (2019). National Planning Policy Framework (NPPF). Accessed from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/810197/NPPF\\_Feb\\_2019\\_revised.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf)

good practice principles (2016)<sup>15</sup> along with industry guidance which outlines the practical implementation of the principles (2019)<sup>16</sup>. The key principle is the application of a mitigation hierarchy, which sets out that development should first avoid biodiverse habitats, then mitigate/minimise impacts upon habitats, then restore/reinstate habitats. As a last resort, once the mitigation hierarchy has been maximised on-site, the project may use biodiversity offsetting to compensate for any residual biodiversity impacts due to the project. The principles require use of a metric (e.g. Natural England metric v2.0) to assess and quantify net biodiversity change (the Warwickshire metric should no longer be used). Applying this process enables transparent reporting on biodiversity outputs to demonstrate delivery against the current policy requirement for BNG.

If there is a significant loss of habitats within the site and no opportunity to recreate habitats of value within the site compensation off-site will likely be required (because a biodiversity net gain is not achievable on site). This involves a financial contribution towards a compensation site within the district which allows a net gain in biodiversity units to be delivered offsite.

#### 4.4 Invertebrates

If any hedgerows, ponds, ditches, woodland/ mature trees or areas of poor semi-improved grassland are removed, this could result in a negative effect on invertebrates. Wherever possible, it is recommended that these habitats are retained within the site boundary. Where this is not possible, new and enhanced planting should be included within the new development and surrounding MOJ land to replace any habitat removed by the development. This should include new, native hedgerow/ tree planting and wildflower grassland. Dead wood from mature trees should be retained with the new habitats.

No further survey(s) in relation to invertebrates is required.

#### 4.5 Great Crested Newts and Other Amphibians

GCN and other, widespread amphibian species are likely to be present within terrestrial habitats on the site. Ponds on the site (P1 – P4) either provide poor suitability for GCN or are dry/ unsuitable, although P1 may be suitable for breeding common frog/ common toad.

There is currently no Natural England led District Licence scheme operating in Leicestershire. The only mitigation option is therefore to apply for a Natural England Mitigation Licence, supported by a suitable mitigation strategy prior to habitat removal and the development of the site. This should be supported by up to date GCN survey data. Seven ponds within a 500m radius of the site were last surveyed for GCN either in 2018 or 2008, while no GCN survey data exists for any remaining ponds. Further surveys of all ponds within a 500m radius of the site (including the four ponds on the site itself) are therefore required, including an update of GCN survey information for ponds surveyed in 2018.

Initially, four night-time presence/ likely absence surveys or single environmental DNA (eDNA) surveys of each pond would be required to determine presence or likely absence of GCN. In ponds where GCN are present, a further two surveys (or six such surveys on ponds where eDNA techniques had been used) would need to be undertaken to determine population size class. GCN surveys can be undertaken between mid-March and mid-June, with half of the surveys in the

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<sup>15</sup> CIEEM, CIRIA, IEMA (2016) Biodiversity Net Gain: Good practice principles for development. Accessed from: <https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf>

<sup>16</sup> CIEEM, CIRIA, IEMA (2019) Biodiversity Net Gain: Good practice principles for development. A practical guide. Accessed from: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf>

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peak season (usually mid-April to mid-May) using a combination of survey techniques (English Nature, 2001)<sup>17</sup>. eDNA surveys can be undertaken from mid-April until the end of June.

GCN mitigation, once the licence is granted, may require the site to be fenced with temporary amphibian fencing, followed by a trapping period (between 30 and 90 days – to be determined) and the translocation of GCN to a suitable receptor area. The suitable receptor area should seek to be within or adjacent to the site boundary and include new habitats with at least the same area to replace those habitats lost, including two new ponds for every GCN pond that is lost, areas of rough grassland, scrub and hibernacula. The receptor site should maintain connectivity for GCN to migrate through the site to offsite habitats. New ponds should be created as early as possible so they may become established and able to accept the translocated population of GCN.

Mitigation for GCN will also serve to protect other, widespread amphibian species likely to be present upon the site.

#### 4.6 Reptiles

The site provides suitability for common reptiles, especially throughout the poor semi-improved grassland, hedgerows and scrub habitats. There is potential for reptiles to be killed or injured if such habitats are removed.

It is recommended that further reptile surveys are undertaken to determine the presence/ likely absence of reptiles on the site and inform mitigation. Reptile surveys can be undertaken between March and October inclusive, with April, May and September being the optimal months. Surveys would typically involve deployment of artificial refugia (0.5m<sup>2</sup> – 1m<sup>2</sup> squares of sheet material) at minimum densities of 10 refuges per hectare. Reptile refugia would need to be deployed by a suitably experienced ecologist and subsequently checked for reptile presence on at least seven separate survey visits in accordance with best practice<sup>18</sup>.

If reptiles are present on the site, a suitable mitigation strategy should be devised, which may include the retention of suitable habitat on the site, the creation of new habitat off-site and/ or reptile translocation.

#### 4.7 Birds

Numerous opportunities for nesting passerine birds are present throughout various habitats across the site. Where hedgerow, scrub, woodland or tree removal is required in order to facilitate the proposals, any such works must be timed to occur outside of the bird nesting season (this is February – August inclusive). In the event that works are required within this time period then inspections for nests should be undertaken by a competent person immediately prior to the start of any works. Should any active nest be found, works shall cease and a minimum five metre buffer, appropriate marked, is to be formed until subsequent checks by an ecologist prove the absence of nesting birds.

Two trees in the western portion of the site are confirmed as occasional/ regular barn owl roosts, and several other nearby trees provide further roosting/ nesting potential for barn owl and other birds of prey. Evidence of breeding barn owls was not identified at the time of the survey and the buildings on site are not considered suitable for this species. The grassland and scrub edge habitats provide good foraging opportunities for barn owl and other birds of prey, such as red kite (a species which was recorded on the site during the extended Phase 1 habitat survey).

A further barn owl survey (nest verification survey) is recommended, to be undertaken by a licenced ecologist between mid-June and early August and in accordance with best practice<sup>19</sup>.

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<sup>17</sup> English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough, UK.

<sup>18</sup> Gent, T. and Gibson, S. (2012). Herpetofauna Workers' Manual 2nd Edition. JNCC, Peterborough

<sup>19</sup> Shawyer, C. R. (2011). Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological

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This will involve a detailed inspection of the roosts identified during the extended Phase 1 habitat survey for evidence of barn owls and nesting/ breeding activity. An assessment to determine whether construction activities will have a negative impact upon barn owls will then be required. This survey will also help determine whether the site is of ecological importance for barn owl on the local scale.

Any confirmed barn owl roosting/ nesting sites should be retained and protected during the nesting season, to protect barn owls and their young from disturbance and to prevent site abandonment by barn owl due to loss of a roost.

Mitigation may include removal of roosting/ nesting sites (when nesting is not taking place) and permanent barn owl box provision to maintain and enhance roosting/ nesting opportunities on the site for the lifetime of the development. Barn owl tree nesting boxes should be erected on suitable trees outside of the development footprint.

It is recommended that some areas of retained grassland on the Ministry of Justice (MoJ) land (but outside of the development footprint) are managed as rough grassland to create habitat for small mammals and therefore provide future barn owl foraging resources.

#### 4.8 Bats

Three buildings on the site provide low bat roosting potential. Further bat presence/ likely absence (emergence) surveys are required on any of these buildings which require demolition/ alterations as part of the new development.

Eight trees on/ directly adjacent to the site provide between low and moderate bat roosting potential. Trees with bat roosting potential should be retained, where possible. There is no further survey requirement for trees with low bat roosting potential, therefore a precautionary methodology should be adopted for any such trees which require felling or significant pruning to facilitate the new development. This may include soft-felling, undertaking felling/ pruning outside of the bat hibernation period (to minimise significant disturbance) and carrying out felling/ pruning under supervision of a suitably licenced ecologist.

Tree(s) with moderate bat roosting potential and which require removal to facilitate the new development should be subject to further bat presence/ likely absence surveys (an aerial assessment using an endoscope or re-entry surveys are recommended for trees with moderate value).

Bat emergence/ re-entry surveys on trees/ buildings are recommended and should be carried out between May and September inclusive and in accordance with best practice<sup>20</sup>. These will ascertain the presence or likely absence of roosting bats and, if present, the number and species of bat(s), roost location(s) and ingress/ egress point(s). This will determine the requirement for a European Protected Species Licence (EPSL) from Natural England and inform mitigation. Additional roost characterisation surveys may also be required (unless sufficient information has already been collected during previous surveys).

The site provides good habitat for foraging and commuting bats and is relatively large in size. It is recommended that bat activity surveys are undertaken to fully understand the use of the site by foraging and commuting bats. These could comprise transect surveys, automated/ static activity surveys, or a combination of both methods. Given the size of the site and the amount of suitable habitat at the site, one survey visit per month (April to October inclusive) is recommended for transect surveys, which should be supplemented with data collected on five consecutive nights per month (April to October inclusive) using automated/ static detectors. This

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Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

<sup>20</sup> Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust (BCT).



is in accordance with best practice<sup>21</sup>. It may be possible that a reduced scope is acceptable if the most highly valued bat habitats on the site can be retained and protected.

It is recommended in general that habitats where bats are most likely forage and commute, in particular the hedgerows, woodland, scrub and ditches, are maintained as dark areas at night, to retain foraging and commuting habitats around and through the site. New habitats should be created to compensate for loss of any hedgerows and trees within the site and to benefit invertebrates, which will increase the abundance of prey for foraging bats.

Potential impacts upon bats could arise from light spill onto retained habitats or potential roost locations, as well as light spill onto any new habitats created as part of the development. This could potentially cause disturbance to foraging, commuting and/ or roosting bats. The detailed lighting strategy for the site should therefore be devised to ensure that spillage of artificial light from buildings and external lights is minimised, whilst still taking account of the security and safety requirements of a prison development. In addition to complying with building regulations, the lighting scheme should be designed following guidelines from the BCT Bats and Lighting in the UK<sup>22</sup>. These include:

- Using low- or high-pressure sodium lights or LEDs instead of mercury or metal halide lamps, where possible, and avoiding the use of lamps greater than 150W;
- Directing lighting to where needed and avoiding spillage, including the use of hoods, cowls, shields etc. to avoid spillage onto areas of vegetation;
- Only lighting areas which need to be lit, and using the minimal level of lighting required to comply with building regulations; and
- Using movement sensors or timers on security lighting, where possible.

#### 4.9 Badger

A large, active main breeding sett (Sett 1) and an active, single entrance outlier (Sett 2) are present in the southern portion of the site, along with a disused outlier (Sett 3). Badger foraging and commuting signs throughout the site and wider landscape are abundant. Several areas of dense vegetation, notably scrub surrounding Sett 2 (TN29) and immediately north of the prison stores building, were not fully accessible during the survey.

It is recommended that the development takes place a minimum of 30m from Sett 1 (active main breeding sett) and sett 2 (active outlier sett). Safe stand-off areas should be created under the supervision of an ECoW and be demarked using suitable fencing, raised 300mm off the ground to allow badger passage. If this is not possible a licence from Natural England will be required for any works that will disturb badgers or destroy/damage the badger sett(s). A licence can be applied for once planning permission is granted. One-way gates would be fitted to all sett entrances, and the sett(s) will subsequently be closed once badgers have been excluded.

If Sett 1 requires closure under Natural England licence, the provision of an artificial badger sett will be required to compensate for the loss of a main breeding sett, the exact location and specifications of which would need to be determined. Closure of an outlier sett would not require the provision of an artificial sett.

It is recommended that an update badger survey is undertaken during the winter months when vegetation has died back and all areas of the site are fully accessible, in order to determine the presence of any further setts in land that could not be accessed during the extended Phase 1

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<sup>21</sup> Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust (BCT).

<sup>22</sup> Bat Conservation Trust (2018) Bats Artificial Lighting in the UK. Guidance Note 08/18

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survey and to update the status of Setts 1 to 3. All other badger field signs will be mapped to provide a detailed picture of the overall use of the site by badgers.

Badgers can potentially establish new setts or re-open disused setts overnight. Regular checks by an ECoW are recommended prior to (pre-commencement) and during the development of the site.

Given the extensive use of the whole site by foraging and commuting badgers, it is considered that there is a high risk of impacting upon foraging/ commuting badgers during construction, such as badgers becoming trapped in excavations. To avoid such impacts, avoidance measures must be followed throughout the period of construction. These measures will form part of an ecological management plan or CEMP and shall include (but are not limited to) the following:

- All work should be undertaken during daylight hours and no artificial lighting should be used;
- Excavation work and heavy machinery should be kept well away from where it could result in damage to the sett or disturbance to any badger occupying a sett;
- Fires and chemicals should not be used within 30m of any active sett;
- Access between setts and foraging/ watering areas should be maintained or new ones provided;
- Badger paths should not be blocked at any time;
- Any trenches should be covered at the end of each working day, or include a means of escape for any animal falling in;
- Any temporarily exposed open pipe system should be capped in such a way as to prevent badgers gaining access, as may happen when contractors are off site;
- Any dangers within the work site to badgers will be identified and reported to the ECoW; and
- No dogs should be taken onto the site by any of the workforce.

#### 4.10 Water Vole

All ponds/ ditches on the site are considered unsuitable for water vole, largely due to the limited volume of water which they hold and high degree of isolation from the surrounding landscape. The proposed development is therefore considered highly unlikely to negatively impact upon this species.

No further survey(s) in relation to water vole is required.

#### 4.11 Otter

The habitats upon the site are considered unlikely to support otters and no signs indicating the presence of this species were observed during the extended Phase 1 survey. The proposed development is therefore considered highly unlikely to negatively impact upon this species.

No further survey(s) in relation to otter is required.

#### 4.12 Hazel Dormouse

The habitats upon the site are considered unlikely to support hazel dormouse and no signs indicating the presence of this species were observed during the extended Phase 1 survey. The proposed development is therefore considered highly unlikely to negatively impact upon this species.

No further survey(s) in relation to hazel dormouse is required.

#### 4.13 Hedgehog

The woodland, hedgerows, scrub and grassland habitats on the site provide shelter and foraging opportunities for hedgehogs. Removal of hedgerows, woodland, debris (such as brash piles) and scrub could directly kill or injure hedgehogs, if present. Foraging hedgehogs may also become trapped in excavations during construction.

To avoid these potential impacts, mitigation should include retention of suitable habitat, or careful removal of suitable habitat if retention is not possible. This may require the presence of an ecologist, depending on the scale of habitat removal. Site clearance should be undertaken between August and October, when hedgehogs are likely to be active and not breeding, and would also avoid the hibernation period. Other measures to protect hedgehogs would involve covering excavations, providing mammal ramps in excavations, and capping any open pipework. These measures should be implemented at the end of each working day and form part of an ecological management plan or CEMP.

No further survey(s) in relation to hedgehog is required.

#### 4.14 Invasive Plants

No invasive plants were found on the site during the extended Phase 1 habitat survey.

In the event invasive plants are encountered during the course of the development, a suitable control or eradication strategy must be adopted.

It is recommended that biosecurity protocols are adhered to during all construction activities, to prevent the spread of INNS onto the site. This should be detailed within a CEMP.

#### 4.15 Enhancement

In order to comply with planning policy<sup>23,24</sup>, additional biodiversity enhancement measures could be provided on the site.

A landscape architect should be appointed to design an appropriate landscape scheme suitable for the purpose of the development. The new habitats should connect with habitats off-site and retained within the site boundary. Habitat removed by the development should be replicated elsewhere on the site, or potentially in the surrounding area.

Enhancement could include (but are not limited to) the following:

- Enhancement for invertebrate species through the provision of log piles or insect boxes ('bug hotels') within the landscape planting.
- Enhancement for birds and bats provided through the provision of bird boxes and bat boxes installed upon suitable trees or on existing buildings on the site which are to remain unaffected by the development.
- New, native hedgerow and tree planting and/ or enhancement of retained hedgerows and woodland.
- Native wildflower seed mix application to areas of grassland within the landscape planting, to provide an additional foraging resource for pollinating bees and other insects.
- Consideration should be given to green infrastructure provision at the site, where feasible.

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<sup>23</sup> Department for Communities and Local Government, 2019. National Planning Policy Framework (NPPF). London. HMSO

<sup>24</sup> Defra, 2011. Natural Environment White Paper. The natural choice: securing the value of nature  
<https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

## 5. CONCLUSIONS

The extended Phase 1 habitat survey and desk study confirmed that the site is of nature conservation importance up to the Local Level and contains populations of, and potential for, protected species including reptiles, GCN, badger, bats, hedgehog and birds (including barn owl).

Table 5.1 summarises the recommendations and further survey requirements that should be implemented so that the development is in conformity with protected species legislation and planning regulations.

Receptor	Recommendations	Timings
Designated Sites	A Construction Environmental Management Plan (CEMP) should be produced with input from a suitably-qualified Ecological Clerk of Works (ECoW), to ensure appropriate mitigation measures are in place to protect (non-statutory) designated sites.	Post-planning
Habitats	Ecologically valuable habitat types are to be retained, wherever possible, detailed within a master plan.	Pre-planning
	A landscape architect should be appointed to design an appropriate landscape scheme suitable for the purpose of the development, to include new native planting.	Pre-planning
	Retained trees and hedgerows should be protected where possible during construction activities in accordance with BS 5837: 2012.	Pre-planning (surveys) and post-planning (implementation of protection measures)
	A CEMP should include control measures to prevent construction impacting upon retained habitats.	Post-planning
	It is recommended that a Biodiversity Net Gain (BNG) Assessment is undertaken.	Pre-planning
Invertebrates	Invertebrate habitats within the site boundary to be retained, where possible, or new replacement habitats created.	Pre-planning
	Invertebrate box ('insect hotel') provision as further enhancement.	Post-planning
Great Crested Newt/ Amphibians	Apply for a Natural England Mitigation Licence, supported by a suitable mitigation strategy prior to habitat removal and the development of the site. This should be supported by up to date survey data of ponds within 500m of the site.	Pre-planning (surveys) and post-planning (licence application)
	New habitat creation will be required, which should include pond creation, with at least two new ponds for every GCN pond removed.	Pre-planning
Reptiles	Further presence/ likely absence reptile surveys to be undertaken. Mitigation may be required depending on the findings of the survey.	Pre-planning
Barn Owl	A barn owl (nest verification) survey to be undertaken to determine the status of breeding barn owl(s) on the site.	Pre-planning

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Table 5.1: Summary of Recommendations		
	Barn owl box provision and creation of grassland habitats suitable for foraging are possible mitigation options.	Post-planning
Other Nesting Birds	Vegetation clearance to be undertaken between outside of the bird nesting season or following checks by an experienced ecologist.	Post-planning
	Nest box provision as an enhancement for nesting birds.	Post-planning
Bats	Further bat presence/ likely absence surveys to be undertaken upon buildings/ trees which will be lost/ impacted upon.	Pre-planning
	Further bat activity surveys (transect or static/ automated) to be undertaken, the scope of which will be influenced by the development footprint.	Pre-planning
	Trees with low bat roosting potential which will be lost/ impacted upon to be felled while adopting to a precautionary methodology.	Pre-planning
	Retention of habitats providing the best bat foraging and commuting opportunities and maintenance as dark areas.	Pre-planning
	The lighting scheme should be designed following guidelines from the BCT Bats and Lighting in the UK.	Post-planning
	Bat box provision as an enhancement.	Post-planning
Badger	Update survey recommended, to be undertaken in the winter months when vegetation is sparse.	Pre-planning
	Creation of 30m stand-off areas around active setts to prevent damage/ destruction/ disturbance. If this is not possible a licence will be required from Natural England for works that will destroy or damage the badger sett.	Post-planning
	Requirement for an artificial sett if Sett 1 (main breeding sett) is closed under licence.	Post-planning
	Adherence to avoidance measures during construction, to be included within a CEMP.	Post-planning
	Regular (including pre-commencement) checks throughout the development.	Post-planning
Hedgehog	Vegetation removal/ site clearance should be undertaken between August and October. Such activities may require supervision from an ecologist.	Post-planning

APPENDIX 1  
FIGURES

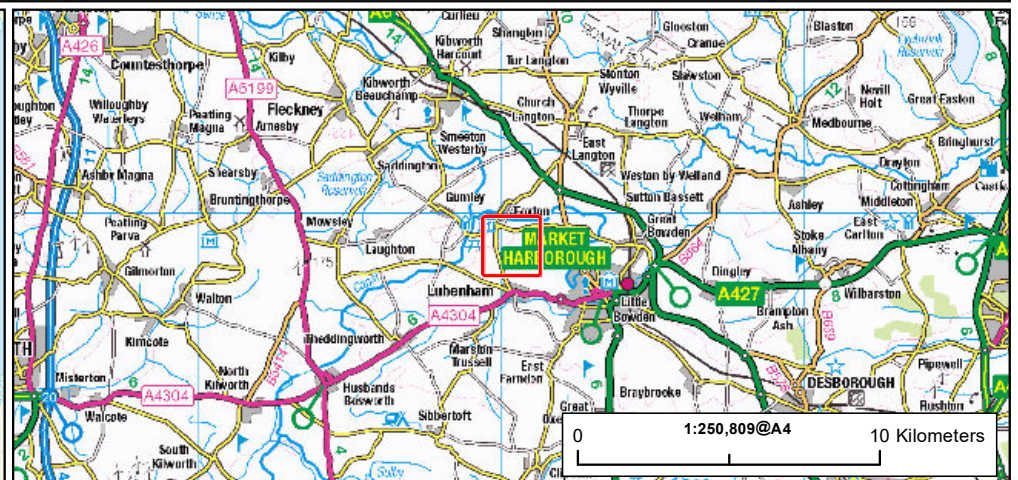
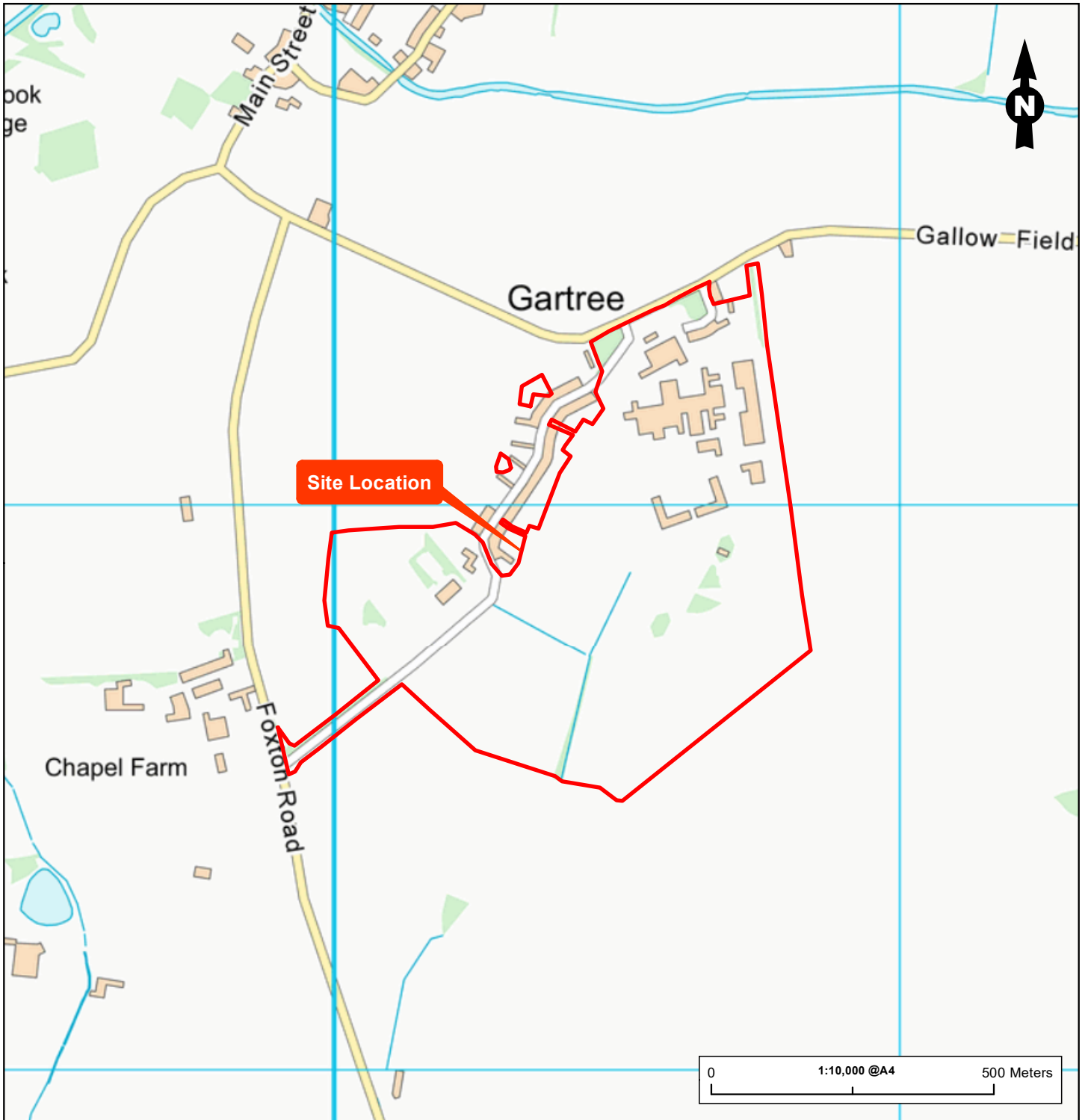
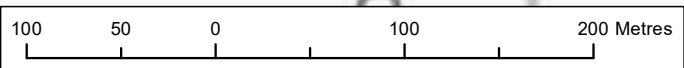
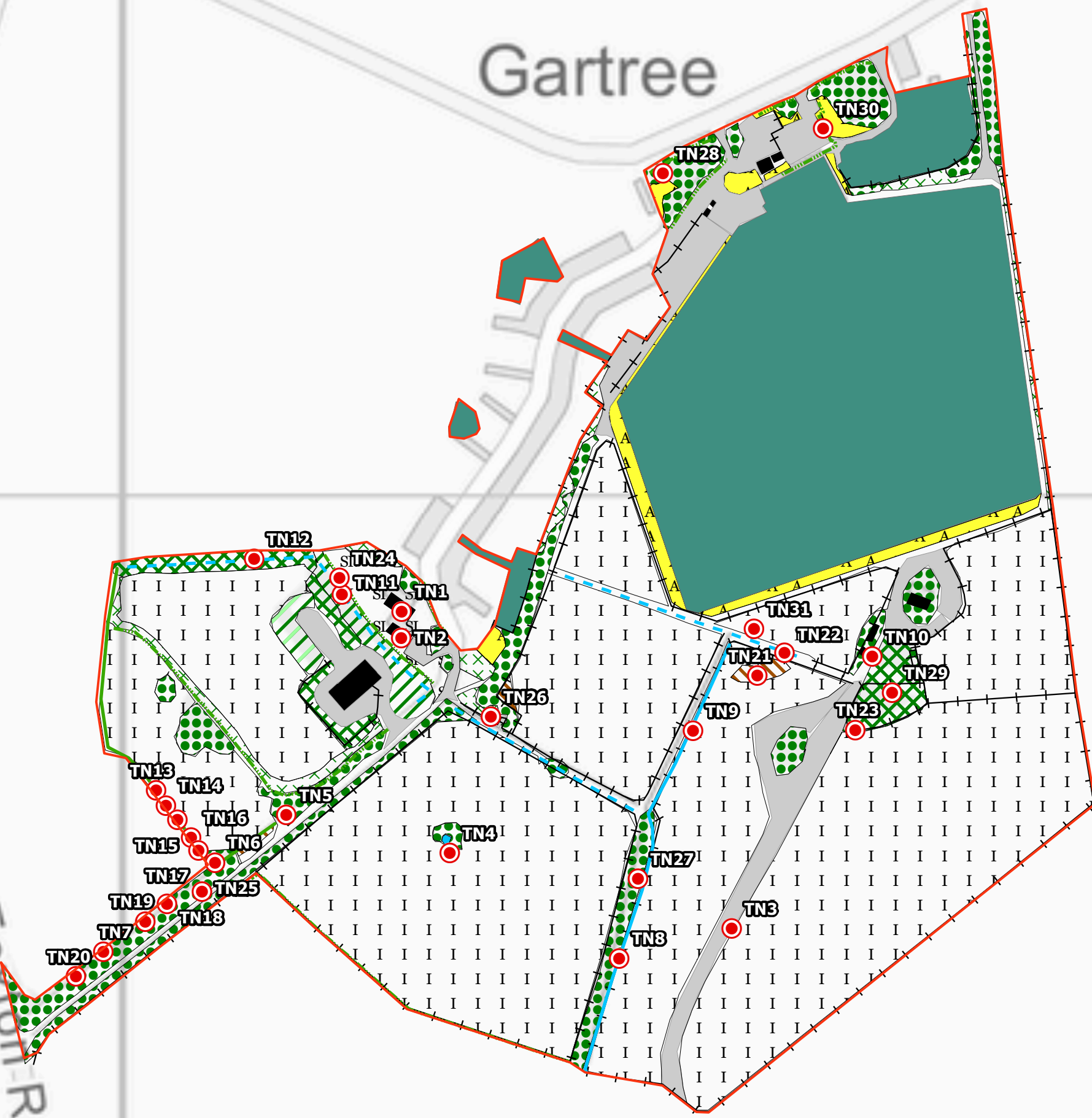


Figure Title <b>Figure 1: Site Location - Raven</b>	Project Name <b>SE Prisons</b>	Date <b>September 2020</b>	
		Scale <b>As shown</b>	
Project Number <b>1620010134</b>	Client <b>Mace International UK limited</b>	Issue <b>1</b>	Prepared By <b>CF</b>





Gartree



**Legend**

- Site Boundary
- Target Note

**Phase 1 Habitat Survey**

- J3.6 Buildings
- A1.1.2 Broadleaved woodland - plantation
- A1.3.2 Mixed woodland - plantation
- A2.1 Scrub - dense/continuous
- A2.2 Scrub - scattered
- A3.1 Scattered trees
- B4 Improved grassland
- B6 Poor semi-improved grassland
- C3.1 Other tall herb and fern - ruderal
- G1 Standing water
- HS Hardstanding
- J1.2 Cultivated/disturbed land - amenity grassland
- NA Not accessed land
- G2 Running water
- J2.1.1 Intact hedge
- J2.2.1 Defunct hedge
- J2.6 Dry ditch
- J2.4 Fence

Figure Title  
**Raven Phase 1 Habitat**

Project Name  
**SE Prisons**

Project Number 1620010134	Figure No. 2
Date September 2020	Prepared By CF
Scale 1:4,000 @A3	Issue 1

Client  
**SE Prisons - Mace**





Target Note	Description
TN1	Disused prison ancillary building with low bat roosting potential
TN2	Disused prison ancillary building with low bat roosting potential
TN3	Tall ruderal vegetation (primarily goosefoot <i>Oxybasis rubra</i> ) growing on old manure piles, providing suitable reptile habitat and with evidence badger foraging activity
TN4	Pond (P1), providing poor suitability for great crested newt (GCN) <i>Triturus cristatus</i>
TN5	Dry pond, which appears to have been dry for a long period of time (P2)
TN6	Dry pond, which appears to have been dry for a long period of time (P3)
TN7	Dry pond, which appears to have been dry for a long period of time (P4)
TN8	Southern portion of wet ditch, over-shaded by hybrid black poplar <i>Populus x canadensis</i> and willow <i>Salix spp.</i> trees and considered to be unsuitable for water vole <i>Arvicola amphibius</i>
TN9	Northern portion of wet ditch, heavily over-grown with vegetation and containing only a very small volume of water, therefore considered unsuitable for water vole
TN10	Small, derelict building with lot bat roosting potential
TN11	Mature ash <i>Fraxinus excelsior</i> tree, hollow at the base of the trunk and with moderate bat roosting potential
TN12	Mature ash tree on arable field boundary with low bat roosting potential
TN13	Mature ash tree in an intact hedgerow with moderate bat roosting potential
TN14	Partially-dead ash tree within an intact hedgerow with moderate bat roosting potential and identified as an occasional barn owl <i>Tyto alba</i> roost/ perch (three old barn owl pellets and bird droppings were found at the base of the tree)
TN15	Mature ash tree within intact hedgerow with a large cavity in the main stem, providing moderate bat roosting potential and identified as a regular barn owl roost (approximately 15 barn owl pellets, droppings and feathers were found at the base of the tree)
TN16	Mature ash tree within intact hedgerow providing a good potential nesting/ roosting site for owls or other birds of prey, but with no evidence found

Title: Target Notes	Client: Mace
Site: Raven	Date: October 2020

TN17	Dead ash tree within intact hedge with low bat roosting potential
TN18	Mature ash tree within defunct hedgerow with a hollow in the main stem, making it potentially suitable for nesting/ roosting owls or other birds of prey
TN19	Mature ash tree in defunct hedgerow with low bat roosting potential
TN20	Very large and mature ash tree within defunct hedgerow with low bat roosting potential
TN21	Sett 1, an active main breeding sett with 21 entrances (of which 18 are active during the extended Phase 1 habitat survey) located within a field and with at least three entrances undermining the adjacent farm track
TN22	Sett 2, an active single-entrance outlier sett located within a hedgerow
TN23	Sett 3, a disused outlier sett with at least two disused entrances, located within dense scrub
TN24	Badger <i>Meles meles</i> path leading along the eastern edge of the woodland, with a latrine found in the adjacent poor semi-improved grassland
TN25	Large badger latrine beneath a lime <i>Tilia x europaea</i> tree comprising at least 10 dung pits
TN26	Large badger latrine and badger foraging signs (snuffle holes) beneath trees
TN27	Well-worn badger paths running alongside the ditch and radiating into adjacent fields
TN28	Poplar <i>Populus spp.</i> tree with low bat roosting potential
TN29	Scrubbed over areas and debris provide good potential opportunities for foraging and sheltering reptiles and amphibians
TN30	Managed cherry laurel <i>Prunus laurocerasus</i> hedgerows
TN31	Drainage pipe exposed in field and terminating within the nearby hedge, likely used as a badger path

Title: Target Notes	Client: Mace
Site: Raven	Date: October 2020

APPENDIX 2  
RELEVANT LEGISLATION AND POLICY

Ecological features are protected under various United Kingdom (UK) and European legislative instruments. These are described below. European legislation is not included as it is incorporated in UK legislation by domestic provisions.

*The Conservation of Habitats and Species Regulations, 2017 (as amended)*

The Habitats Directive (Council Directive 92/43/EEC)<sup>25</sup> came into force in 1992 and provides for the creation of a network of protected wildlife areas across the European Union, known as 'Natura 2000'. The Natura 2000 network consists of Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (Council Directive 79/409/EEC)<sup>26</sup>. These sites are part of a range of measures aimed at conserving important or threatened habitats and species.

The Conservation of Habitats and Species Regulations 2017<sup>27</sup> commonly known as 'the Habitats Regulations' transposes the Habitats Directive into national law and set out the provisions for the protection and management of species and habitats of European importance, including Natura 2000 sites. The 2017 bill consolidated all previous versions of the regulations and subsequent amendments since initial transposition, bringing them all under the single heading, and made a number of minor amendments. It extends to England and Wales, and to a limited extent Scotland and Northern Ireland. In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transposes the Habitats Directive in relation to Northern Ireland.

In addition to providing for the designation and protection of Natura 2000 sites, the Habitats Regulations provide strict protection for plant and animal species as European Protected Species. Derogations from prohibitions are transposed into the Habitats Regulations by way of a licensing regime that allows an otherwise unlawful act to be carried out lawfully for specified reasons and providing certain conditions are met. Under the Habitats Regulations, competent authorities have a general duty, in the exercise of any of their functions, to have regard to the Habitats Directive and Wild Birds Directive including in the granting of consents or authorisations. They may not authorise a plan or project that may adversely affect the integrity of a European site, with certain exceptions (considerations of overriding public interest).

*The Countryside and Rights of Way Act 2000*

The Countryside and Rights of Way Act 2000<sup>28</sup> primarily extends to England and Wales. It provides a new statutory right of access to the countryside and modernises the rights of way system, bringing into force stronger protection for both wildlife and countryside.

*The Act is divided into five distinct sections, Part III is of relevance to ecology:*

Part III - Nature Conservation and Wildlife Protection: The Act details a number of measures to promote and enhance wildlife conservation. These measures include improving protection for Sites of Special Scientific Interest (SSSIs) and increasing penalties for deliberate damage to SSSIs. Furthermore, the Act affords statutory protection to Ramsar Sites which are wetlands designated under the International Convention on Wetlands<sup>29</sup>.

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<sup>25</sup> European Commission (1992) Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. European Commission, Brussels

<sup>26</sup> European Commission (1979) Council Directive 79/409/EEC on the conservation of wild birds, European Commission, Brussels

<sup>27</sup> Secretary of State (2017) The Conservation of Habitats and Species Regulations. Her Majesty's Stationery Office (HMSO)

<sup>28</sup> Secretary of State (2000) The Countryside and Rights of Way Act. HMSO

<sup>29</sup> United Nations Educational, Scientific and Cultural Organization (UNESCO) (1971) Convention on Wetlands of International Importance especially as Waterfowl Habitat, as amended in 1982 and 1987. Ramsar, Iran Published in Paris, 1994

*Wildlife and Countryside Act 1981, as Amended in Quinquennial Review and by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006*

The Wildlife and Countryside Act 1981<sup>30</sup> forms the basis of much of the statutory wildlife protection in the UK. Part I deals with the protection of plants, birds and other animals and Part II deals with the designation of SSSIs.

This Act covers the following broad areas:

- Wildlife - listing endangered or rare species in need of protection and creating offences for killing, disturbing or injuring such species. Additionally, the disturbance of any nesting bird during breeding season is also noted as an offence, with further protection for species listed on Schedule 1. Measures for preventing the establishment of non-native plant and animal species as listed on Schedule 9 are also provided;
- Nature Conservation - protecting those Sites which are National Nature Reserves (NNR) and SSSI;
- Public Rights of Way - placing a duty on the local authority (normally the County Council) to maintain a definitive map of footpaths and rights of way. It also requires that landowners ensure that footpaths and rights of way are continually accessible; and
- Miscellaneous General Provisions.

The Act is enforced by Local Authorities.

*Natural Environment and Rural Communities (NERC) Act 2006*

Under the NERC Act 2006<sup>31</sup> Section 40, public authorities must show regard for conserving biodiversity in all their actions. Public authorities should consider how wildlife or land may be affected in all the decisions that they make. The commitment to the biodiversity duty must be measured by public authorities.

NERC Act 2006 Section 41 requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England.

*Protection of Badgers Act 1992*

The Protection of Badgers Act 1992<sup>32</sup> consolidated previous legislation relating specifically to badgers and protects both badgers and their setts. Under the Act, it is an offence to:

- Wilfully kill, injure or take, or attempt to kill, injure or take, a badger;  
Possess a dead badger or any part or derivative of a badger;
- Cruelly ill-treat a badger;
- Dig for a badger;
- Damage a badger sett or any part of it;
- Destroy a badger sett;
- Obstruct access to, or any entrance of, a badger sett;
- Cause a dog to enter a badger sett; or
- Disturb a badger when it is occupying a badger sett.

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<sup>30</sup> Secretary of State (1981) Wildlife and Countryside Act. HMSO

<sup>31</sup> Natural Environment and Rural Communities Act 2006. HMSO

<sup>32</sup> Secretary of State (1992) Protection of Badgers Act 1992. HMSO

### *Biodiversity Action Plans*

In 1994, Government produced the UK Biodiversity Action Plan (BAP)<sup>33</sup>, a national strategy for the conservation of biodiversity. This led to the creation of the UK Biodiversity Steering Group, which has listed 1,150 Species Action Plans (SAPs) and 65 Habitat Action Plans (HAPs). Regional and District/Borough BAPs apply the UK BAP at a local level.

From July 2012, the UK Post-2010 Biodiversity Framework<sup>34</sup> succeeds the UK BAP and Conserving Biodiversity - the UK Approach. This is as a result of a change in strategic thinking following the publication of the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011 - 2020 and its 20 'Aichi targets', at Nagoya, Japan in October 2010, and the launch of the new EU Biodiversity Strategy (EUBS) in May 2011.

The UK Post-2010 Biodiversity Framework constitutes the UK's response to these new 'Aichi' strategic goals and associated targets. The Framework recognises that most work which was previously carried out under the UK BAP is now focussed on the individual countries of the United Kingdom and Northern Ireland, and delivered through each countries' own strategies.

Following the publication of the new Framework, the UK BAP partnership no longer operates. However, many of the tools and resources originally developed under the UK BAP remain of use. The UK list of priority species has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. For England, this is in line with the NERC Act 2006 Section 41.

### *Biodiversity in the Planning Process*

Administrative and policy guidance on the application of some of these statutory obligations is provided through relevant government policy guidance and advice. In England, this includes National Planning Policy Framework 2012, National Planning Practice Guidance, Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System, Biodiversity 2020 and Natural Environment White Paper The natural choice: securing the value of nature.

### *National Planning Policy Framework, 2019*

The National Planning Policy Framework (NPPF)<sup>[1]</sup> adopted in 2019 sets out the Government's planning policies for England and how these are expected to be applied. The NPPF contains the following statements which are of relevance (not an exhaustive list, but including those of highest relevance):

- Section 15, paragraph 170 states that the planning system should contribute to and enhance the natural and local environment by: *"minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures"*;
- Section 15, paragraph 174 states that planning applications should *"promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity"*.
- Section 15, paragraph 174 states that - *"To protect and enhance biodiversity and geodiversity, plans should: identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and*

<sup>33</sup> Her Majesty's Stationery Office, 1994. Biodiversity: The UK Action Plan. London

<sup>34</sup> JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. July 2012. [jncc.defra.gov.uk/pdf/UK\\_Post2010\\_Bio-Fwork.pdf](http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf)

[1] Department for Communities and Local Government, 2019. National Planning Policy Framework (NPPF). London. HMSO

*locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation"*; and

- Section 15, paragraph 175 states that when determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles: *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused"*. It also states that planning permission should be refused for: *"development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees)... unless there are wholly exceptional reasons and a suitable compensation strategy exists"*.

*Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System.*

This circular<sup>35</sup> provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the Planning Practice Guidance.

*Natural Environment White Paper. The natural choice: securing the value of nature*

The Natural Environment White Paper<sup>36</sup> outlines the government's vision for the natural environment over the next 50 years, shifting the emphasis to an integrated landscape-scale approach. It describes the actions that will be taken to deliver that goal.

*Biodiversity 2020*

The Biodiversity 2020<sup>37</sup> strategy for England builds on the Natural Environment White Paper and provides a comprehensive picture of how England is implementing its international and EU commitments. It sets out the strategic direction for biodiversity policy on land (including rivers and lakes) and at sea.

The mission for this strategy is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.

It is anticipated that this will be delivered through:

- a more integrated large-scale approach to conservation on land and at sea;
- putting people at the heart of biodiversity policy;
- reducing environmental pressures; and
- improving knowledge.

*Local Planning Policy*

*Leicestershire and Rutland Biodiversity Action Plan*

This Action Plan was modelled on the national UK Action Plan but concentrated on habitats and species of local conservation concern. The plan has been updated three times since, most

<sup>35</sup> Office of the Deputy Prime Minister (2005) Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System. <https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005>

<sup>36</sup> Defra (2011) Natural Environment White Paper. The natural choice: securing the value of nature <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

<sup>37</sup> Defra, 2011. Biodiversity 2020. <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>

recently in in 2016. The plan is now called Space for Wildlife: Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLRBAP).

Leicestershire protected/ BAP species and BAP habitats are listed in the table below:

Leicestershire BAP Habitats	Leicestershire Protected Species
Broadleaved woodland	Badger
Eutrophic standing water	Bats
Fast-flowing streams	Water vole
Field margins	White-clawed crayfish
Floodplain wetland	Great crested newts
Hedgerows	Slow-worm
Lowland wood pasture and parkland	Grass snake
Mature trees	Leicestershire BAP Species
Mesotrophic lakes	Common redstart
Neutral grassland	
Reedbeds	
Roadside verges	
Rocks and built structures	
Springs and flushes	
Urban habitat	
Wet woodland	



APPENDIX 3  
SITE PHOTOGRAPHS



Photo 1. A view south along a path intervening a tree line and fields



Photo 2. Poor semi-improved grassland in the western portion of the site

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 3. Disused ancillary prison buildings with low bat roosting potential (TN1; TN2)



Photo 4. A view north across the largest field in the western portion of the site, with encroaching scrub

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 5. The southern extent of the small stand of broadleaved plantation woodland



Photo 6. Small stand of mixed plantation woodland

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 7. A view southwest across the eastern portion of the site, showing fields of improved grassland



Photo 8. Small brick building with low bat roosting potential (TN10)

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 9. A view northeast along Welland Avenue, bordered by lines of scattered trees



Photo 10. A view east across the southern-most grazed field and line of poplars beyond

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 11. A view south across the central/ southern portion of the site, showing improved grassland and scattered trees



Photo 12. A typical view of P1 (TN4)

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 13. The northern half of the wet ditch (TN9)



Photo 14. A view southwest along the long strip of hardstanding with vegetated manure piles to the south of the existing prison (TN3)

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020





Photo 15. A typical entrance/ spoil pile of Sett 1 – a main breeding sett (TN21)



Photo 16. Inside a typical Sett 1 entrance (TN21)

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020



Photo 17. One of several badger latrines found throughout the site



Photo 18. A typical view on the single entrance of Sett 2 – an outlier (TN22)

Title: Site Photographs	Client: Mace
Site: Raven	Date: October 2020

Intended for  
Mace Group



Date  
March 2021

Project Number  
1620010134

# RAVEN BADGER SURVEY

# RAVEN BADGER SURVEY

Project No. 1620010134  
Issue No. 2  
Date 1<sup>st</sup> March 2021  
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Relevant Legislation and Policy

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Site Photographs (November 2020)

### Appendix 4

Site Photographs (February 2021)

# 1. INTRODUCTION

## 1.1 Background

Ramboll UK Limited ('Ramboll') was commissioned by Mace Group (the 'Client'), to carry out a badger *Meles meles* survey at the Raven development site, located at Her Majesty's Prison (HMP) Gartree, Gallow Field Road, Leicestershire, LE16 7RP (the 'site') in advance of the construction of a new prison at the site. The site is centred upon OS grid reference SP 705 886.

Ramboll previously undertook an extended Phase 1 habitat survey of the larger Ministry of Justice (MoJ) site in September 2020 and a subsequent badger survey in November 2020. Six existing badger setts were identified on the application site during these surveys and extensive badger field signs were found throughout the site and in the immediate surroundings. Several areas of the site were densely overgrown at the time of the extended Phase 1 habitat survey and remained well-vegetated in November 2020.

Following reports of additional badger setts identified on the site, an update visit was undertaken by Ramboll in February 2021.

## 1.2 Objectives

The content of this report is based on the findings of:

- A daytime badger survey; and
- An update daytime badger survey.

The specific objectives of this report are to:

- Update the status and determine the full extent of setts previously identified on the site;
- Identify and map the location of any new setts on and within 30m of the site;
- Identify and map the location of other badger field signs on the site;
- Assess the overall importance of the site for badgers; and
- Provide recommendations for mitigation and enhancement, taking into account the proposed development footprint.

The report is supported by the following appendices:

- Appendix 1: Figures;
- Appendix 2: Legislation and Policy Context;
- Appendix 3: Site Photographs (November 2020); and
- Appendix 4: Site Photographs (February 2021).

The structure and content of this report is based on current ecological report writing guidance (CIEEM, 2017<sup>1</sup>).

## 1.3 Proposed Development

This report is required in connection with an Outline Planning Application (OPA) for the construction of a new prison at the site comprising:

- House blocks;
- Care and Support Unit (CASU);
- Entrance Hub;
- Support Building;

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<sup>1</sup> CIEEM (2017). Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

- Central Services Hub;
- Workshops;
- Kitchen;
- Kennels; and
- Associated hard and soft landscaping, including perimeter fencing.

Current plans show the footprint of the proposed new prison immediately to the south and southwest of the existing HMP Gartree, constituting the southern portion of the wider MoJ site.

#### 1.4 Legislation and Policy Framework

Various legislation and planning policies refer to the protection of wildlife. Badgers and their setts are afforded legal protection under the Protection of Badgers Act 1992, with further protection afforded by other legislation, including the Wildlife and Countryside Act 1981 (as amended). These are summarised in Appendix 2 but should not be regarded as a definitive legal opinion. When dealing with individual cases, the full texts of the relevant documents should be consulted, and legal advice obtained if necessary.

The Protection of Badgers Act 1992 was introduced to combat the persecution of badgers. This report identifies the location of several badger setts; therefore, in order to safeguard this species, the information contained within this report should be treated as confidential.

## 2. METHODOLOGY

### 2.1 Desk Study

A desk study was conducted in September 2020 as part of the Preliminary Ecological Appraisal (PEA) of the site. This included a search for protected species (including badger) within 2km of the site.

Leicestershire and Rutland Environmental Records Centre (LRERC) was contacted to provide details of designated sites and protected species within 2km of the site. Due to data ownership restrictions in the reproduction of the LRERC report, it is not appended to this report, but the information provided is summarised in the relevant sections. Supplementary information on the site and its surroundings was obtained from aerial imagery available from Google™ Earth Pro and MAGIC<sup>2</sup>.

No previous ecological reports relating to the site have been supplied by the client or are known to the author.

### 2.2 Badger Survey

The badger survey was undertaken by Jonathan Molesworth of Ramboll during a single daytime visit on 24<sup>th</sup> November 2020. The survey was carried out in dry weather, with scattered cloud and a fresh breeze, and with the daytime temperature ranging between 9°C and 11°C.

An update badger survey was undertaken by Jonathan Molesworth of Ramboll during a single daytime visit on 18<sup>th</sup> February 2021. The survey was carried out in dry weather, with 100% cloud cover, and with a daytime temperature of 8°C.

Jonathan has worked as an ecologist since 2015, holds Natural England (NE) and Natural Resources Wales (NRW) licences for great crested newt (GCN) *Triturus cristatus*, a NE licence for white-clawed crayfish *Austropotamobius pallipes*, associate membership with the Chartered Institute of Ecology and Environmental Management (CIEEM) and a first-class degree in Biological Sciences from the University of Liverpool. Jonathan has four years' experience in surveying for badgers and has had extensive experience in designing and assisting in the implementation of mitigation for this species.

The survey in November 2020 involved a thorough walkover of the site and immediate surrounds, incorporating a 30m buffer around the proposed development footprint, wherever possible, to search for badger setts, excavations and other field signs indicative of this species. This was undertaken in line with best practice guidance<sup>3,4</sup>. Where present, an assessment of any sett entrances was made, taking into account the shape of the entrance, the quantity of spoil and freshness of its excavation, the presence of fresh bedding, the presence of badger hair and the presence of badger claw marks. The status (active or disused by badger) of setts was ascertained and setts were classified into the following sett types, based on published criteria<sup>5,6</sup>:

- *Main Sett: The continuously used, breeding and over-wintering sett for a social group of badgers. Only one main sett will exist in each social group's territory and will be relatively centrally located within the group's range.*

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<sup>2</sup> Multiple-Agency Geographic Information for the Countryside (MAGIC). [online] Available at: <https://magic.defra.gov.uk/magicmap.aspx> (accessed 23-11-2020)

<sup>3</sup> Harris, S., Cresswell, P. & Jefferies, D. (1989). Surveying Badgers. Occasional Publication No. 9. The Mammal Society, London.

<sup>4</sup> Neal, E. & Cheeseman, C. (1996). Badgers. T & AD Poyser Ltd, London.

<sup>5</sup> Andrews, R. (2013). The Classification of badgers *Meles* setts in the UK: A review and Guidance for Surveyors. In Practice, CIEEM: pp. 27 – 31.

<sup>6</sup> Cresswell, P., Harris, S. & Jefferies, D.J. (1990). The history, distribution, status and habitat requirements of the badger in Britain. Nature Conservancy Council, Peterborough.



- Annex Sett: *An annexe of the main sett, linked by well-used surface paths to the main sett (but not connected underground). Not continuously used.*
- Subsidiary Sett: *Distant from main sett. Several entrances, but with no well-used paths connecting to main sett and used only seasonally.*
- Outlier Sett: *Distant from the main sett. Small, with one or two entrances only. Used for short periods sporadically, with no obvious, well-used paths connecting to other setts.*

Any additional badger field signs throughout the site such as badger paths/ footprints, scrapings/ snuffle holes produced during foraging behaviour, latrines/ dung pits, scratching trees and diurnal resting places were identified and mapped.

Linear features, such as hedgerows and ditches, were inspected from both sides to minimise the risk of any badger setts or field signs being overlooked.

The update badger survey in February 2021 included revisiting setts already identified throughout the site during the first survey, in addition to an inspection of new reported setts within the northeast portion of the survey area.

### 2.3 Assessment of Importance of Ecological Features

The importance of badgers within the zone of influence has been assessed using a scale that classifies ecological features within a defined geographic context in accordance with CIEEM guidelines (2018<sup>7</sup>). The classification uses recognised and published criteria (e.g. Ratcliffe, 1977<sup>8</sup>; Wray *et al.* 2010<sup>9</sup>) where the habitats and site were assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. The following geographic frame of reference has been used for the site:

- International Importance
- National Importance (England)
- Regional Importance (East Midlands)
- County Importance (within Leicestershire)
- Local Importance
- Site Importance (limited to the application site boundary)
- Negligible Importance

### 2.4 Limitations

The conclusions presented in this report represent Ramboll's best professional judgment based upon the information available and conditions existing as of the date of this report.

November is considered to be an optimal time of the year for undertaking a badger survey, given that vegetation has typically died back, and badger setts/ field signs are therefore less likely be overlooked. However, in November 2020 vegetation and scrub in the northeast portion of the site remained dense in places. During the update visit in February 2021, it was noted that vegetation and scrub had died back significantly since November.

Badger activity levels are liable to fluctuate seasonally and/ or in response to other environmental factors. As with any ecological study, the badger survey provides only a 'snapshot' of the conditions on the site prevailing at the time of survey. Furthermore, badgers are

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<sup>7</sup> CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute for Ecology and Environmental Management, Winchester.

<sup>8</sup> Ratcliffe, D. (1977). A Nature Conservation Review. Cambridge University Press.

<sup>9</sup> Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment. In Practice, pp. 23-25.

unpredictable animals that are liable to excavate new setts or re-open disused setts in a short space of time.

All areas of the site were fully accessible at the time of the survey(s). The majority of land within a 30m buffer surrounding the proposed development footprint was also accessible, apart from an area to the north (within the existing prison fencing) and to the south (on land outside of MoJ ownership). This report does not present data on, or discuss ecological constraints posed by any ecological receptors that may be present in the un-surveyed part(s) of the site or immediate surroundings.

This report has been prepared for the client and shall not be relied upon by any third party unless that party has been granted a contractual right to rely on this report for the purpose for which it was prepared.

Ramboll is satisfied that this report represents a robust appraisal of the site for the purpose of a badger survey. If no action or development has taken place on this land within six months of the review date of this report, the findings of this survey should be reviewed by a suitably qualified ecologist and may need to be updated.

## 3. RESULTS

### 3.1 Desk Study

#### 3.1.1 Landscape Context

The site is set in a rural location, situated approximately 1.7km northwest of the town of Market Harborough, in Leicestershire. The site is set within a plot of land under the ownership of the MoJ and an existing prison is located to the immediate north; this is HMP Gartree, a Category B prison. To the south and east of the site extends a combination of grazed pasture, tall ruderal vegetation and arable land. To the northwest are residential properties and amenity gardens associated with Welland Avenue, beyond which lies large expanses of arable land. Welland Avenue borders part of the site, to the west, and will be used for access to the new proposed prison.

#### 3.1.2 General Site Description

The site is irregular in shape and occupies an area of approximately 20.37 hectares (ha). The site is dominated by improved grassland present across five adjacent pasture fields, some of which are subject to grazing by livestock, and delineated by ditches, scattered trees, farm tracks and hedgerows. Three disused buildings are situated in the northeast portion of the site, along with several stands of dense scrub and scattered trees.

#### 3.1.3 LRERC Species Records

LRERC returned a total of 102 badger records of within 2km of the site. Main setts have previously been recorded approximately 315m to the east, 305m south and 860m north, respectively. The highest concentrations of setts exist to the southeast of the site, although some on the outskirts of Market Harborough may have subsequently been closed under licence to facilitate construction within the nearby Strategic Development Area.

### 3.2 Badger Survey

#### 3.2.1 Badger Sett Baseline

Ten badger setts (S1 – S10) are present on the site (within the proposed development footprint), described below, illustrated in Figure 1 (Appendix 1) and summarised in Table 3.1. This includes the three setts (S1 – S3) initially identified during the extended Phase 1 habitat survey, in addition to three additional outlier setts (S4 – S6) identified during the dedicated badger survey. Four additional setts (S7 – S10) were identified during the update badger survey, and the classification and status of several of the setts previously identified in November 2020 has been changed based on new observations. Photographs from November 2020 are included in Appendix 3 and photographs from February 2021 included in Appendix 4.

It was generally noted that the levels of badger activity across the site has changed significantly between November 2020 and February 2021, with a notable increase in the northwest portion of the site and a slight reduction in activity in the southern portion of the site.

##### *Sett 1 (S1)*

S1 is a large, active main sett located within a stand of tall ruderal vegetation in the northwest corner of a large field, currently grazed by sheep, in northern half of the site.

S1 features a total 22 entrances (at least two of which open out into two separate tunnels within), facing in various directions and which span an area of approximately 40m from the southern-most entrance in the main body of the field to the northern-most entrances spread along the edge of a farm track. At least four of the entrances undermine and are situated beneath the boundary fence and farm track to the north, with anecdotal evidence indicating that

the track has previously been repaired with bricks and rubble. At the time of the survey, 19 of the sett entrances displayed signs indicating current use by badger(s), including badger hair, large spoil heaps with fresh earth removal, numerous badger paw prints and claw marks, bedding material and polished soil in the bases/ sides of the tunnels. Two entrances were disused, and one entrance had collapsed (likely due to trampling by livestock) and several collapsed tunnels were also noted. Additional signs found in the vicinity of the Sett 1 entrances included numerous very large and fresh latrines, well-worn badger paths leading between the entrances and radiating into the surrounding fields, and foraging scrapes/ snuffle holes in the grassland surrounding the sett.

There is also anecdotal evidence that S1 has existed on the site for at least 40 years (*pers. comm.*, tenant, 24/11/2020).

#### *Sett 2 (S2)*

S2 is an active, single entrance annex sett located within a dry ditch/ hedgerow approximately 10m north of the nearest entrance of S1, on the opposite side of the farm track. S2 is linked with S1 by a badger path but the foundations of the intervening farm track make it unlikely that the two setts are linked underground (although it is plausible that they may have been in the past).

The single, west-facing entrance displayed signs indicating current use by badger(s) at the time of the survey, including badger hair, a large and fresh spoil heap with badger paw prints, a badger path leading into the entrance and through the middle of the hedgerow, and several badger latrines in the near vicinity.

Several potential, former, north-facing sett entrances are located within the verge along the southern edge of the hedgerow immediately adjacent to S2; however, these are considered historic and no longer associated with any sett.

#### *Sett 3 (S3)*

S3 is an active annex sett located within dense scrub, set on a raised mound, approximately 70m east of S1 at its nearest point and linked by badger paths. S3 was disused by badger(s) in September/ November 2020 but was found to be active (with high levels of activity) in February 2021.

S3 features eight south/ southwest-facing entrances located on the edge of the mound, situated beneath young elder *Sambucus nigra* trees and spreading further to the northeast. All of the entrances displayed signs indicating current use by badger(s) in February 2021. Several rabbit *Oryctolagus cuniculus* burrows located in the vicinity of S3 in November 2020 had been re-opened by badger(s) in February 2021. Signs indicating current use by badger(s) were identified in February 2021, including badger hair, badger paw prints, fresh earth removal and badger paths leading between the entrances and two very fresh latrines. Badger paths leading under the fence into this area evidenced high levels of use in February 2021, given the large amount of badger paw prints along these paths. This contrasts to findings in November 2020.

#### *Sett 4 (S4)*

S4 is a disused outlier sett located within the same field as S1, approximately 85m south of S1 at its nearest point, set on a slight west-facing gradient.

S4 features a single west-facing entrance located in a cluster of common nettle *Urtica dioica* and is heavily trampled by livestock. The single entrance of S4 is of a size and shape commensurate with that dug by badger(s) but did not display signs indicating current use by badger(s) at the time of the survey. Several rabbit burrows are also located in the vicinity of S4, spread across several metres further east up the slope (TN5).

*Sett 5 (S5)*

S5 is a disused outlier sett located on the boundary between a grazed pasture field and the line of poplar *Populus spp.* trees/ ditch, located centrally within the site, approximately 200m southwest of S1 at its nearest point.

S5 features two entrances situated either side of a stock fence, both of which are east-facing. The western-most entrance has been excavated beneath a large concrete slab. Neither entrance displayed signs indicating current use by badger(s) at the time of the survey; however, a small dung pit was found close to the western-most entrance. Both entrances were flooded in February 2021; this is likely to be a major factor as to why S5 is currently disused by badger(s).

*Sett 6 (S6)*

S6 is a disused outlier sett located within a mature and defunct hedgerow and beneath the southern site boundary fence, approximately 370m southwest of S1 at its nearest point. The single entrance of S6 is south-facing and a collapsed tunnel was found several metres north, on the site-side of the fence; therefore, this sett is considered to lie within the proposed development footprint despite the entrance itself being located just off-site. An inspection within the collapsed tunnel with a camera revealed that a tunnel continues to lead north into the field, the end of which is not visible.

Although the entrance of S6 was inaccessible, a large spoil heap was evident outside the entrance. The collapsed tunnel on the site-side of the fence was inspected and no signs indicating current use by badger(s) were identified in February 2021. This sett was, however, previously found to be active in November 2020 (badger hairs were found inside the tunnel). The collapsed tunnel in the field has become trampled by livestock since November 2020 causing damage to the tunnel below and this is considered to have contributed to this S6 becoming disused by badger(s).

*Sett 7 (S7)*

S7 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 20m to the east of S3, situated upon the same mound (on the same aspect).

S7 features six entrances, mostly south-facing and interspersed with several rabbit burrows. One entrance comprises several gaps beneath a large concrete slab, near the crest of the slope. All entrances displayed signs indicating current use by badger(s) including badger hair, badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal and a fresh latrine near the centre of this sett.

It is considered likely that S7 has been recently been re-opened by badger(s).

*Sett 8 (S8)*

S8 is an active outlier sett which was identified in February 2021. This sett is located approximately 8m to the east of S7, situated upon the same mound (on the same aspect) but is not considered to be connected underground.

S8 features a single south-facing entrance which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels and a badger path leading beneath the fence (immediately south) and towards the sett entrance. This sett is also surrounded by several rabbit burrows.

It is considered likely that S8 was formerly a rabbit burrow that has been recently been opened up by badger(s).

*Sett 9 (S9)*

S9 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 16m to the east of S8, situated in the corner of the mound of scrub, in the area between an elder and a willow tree.

S9 features five entrances facing various directions (several set into the mound and the others on level ground), all of which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal (with recently-excavated debris, such as bricks, in the spoil), badger paths leading between the entrances and a fresh badger latrine in the vicinity of the sett. A number of rabbit burrows (with rabbit droppings evident) are also spread around the peripheries of S9.

It is considered likely that S9 has been recently been re-opened by badger(s).

*Sett 10 (S10)*

S10 is an active subsidiary sett which was identified in February 2021. This sett is located approximately 35m to the north of S9, situated in the southeast corner of a second plot of scrub, set on a mound.

S10 features three entrances facing various directions (several set into the mound and the others on level ground), all of which displayed signs indicating current use by badger(s) including badger paw prints, polished spoil in the base and sides of the tunnels, fresh earth removal (with recently-excavated debris, such as bricks, in the spoil), badger paths leading between the entrances and a fresh badger latrine at the sett. One hole was identified which was deemed most likely an aborted excavation attempt. A number of rabbit burrows (with rabbit droppings identified) are also spread around the vicinity of S9.

It is considered likely that S9 has been recently been re-opened by badger(s).

**Table 3.1: Summary of Badger Setts Present (as of February 2021)**

Sett No.	Central Grid Reference	Sett Type	No. Entrances	Status
S1	SP 70557 88858	Main sett	22	Active
S2	SP 70571 88877	Annex sett	1	Active
S3	SP 70635 88819	Annex sett	8	Active
S4	SP 70511 88766	Outlier sett	1	Disused
S5	SP 70335 88537	Outlier sett	2	Disused
S6	SP 70288 88550	Outlier sett	1	Disused
S7	SP 70653 88819	Subsidiary sett	6	Active
S8	SP 70664 88819	Outlier sett	1	Active
S9	SP 70676 88828	Subsidiary sett	5	Active
S10	SP 70673 88864	Subsidiary sett	3	Active

### 3.2.2 Other Badger Field Signs

Numerous badger field signs were identified throughout the site, described below and illustrated in Figure 2 (Appendix 1).

An exposed drainage pipe in the north of the site, situated in a field directly south of the existing prison and which leads below ground into a dry ditch within the nearby hedgerow (TN1), was previously identified as a badger path during the extended Phase 1 habitat survey. No signs

indicating recent use by badger(s) were, however, found within this pipe at the time of the dedicated badger survey.

Numerous badger paths were identified throughout the site, with notable examples including:

- A well-worn path covered with badger paw prints which leads along a mature and defunct hedgerow in the north of the site and continues off-site to the northwest (TN2), before continuing along the farm track towards S1/ S2 where it branches off on both sides of the farm track (TN3).
- Several paths which radiate out to the south and east of S1.
- A path which leads beneath the line of poplar trees, adjacent to a ditch, in the central portion of the site.
- A path which leads under the fence bounding the public footpath along the southwest site boundary and continues northeast towards the pond in the middle of the field where it then peters out.
- A long path which follows much of the southern and eastern site boundary, branching off below the boundary fence at several points (leading into the adjacent arable fields).

Other field signs such as foraging signs, badger paw prints and latrines were also noted throughout the site, with notable examples including:

- Foraging along Welland Avenue to the southwest of the proposed development footprint (along which access for the new prison will be gained; TN4), along with several latrines in the verge.
- Extensive foraging in the grassland surrounding S1.
- Foraging signs and latrines in field margins the southern portion of the site.

### 3.2.3 Other Observations

Several rabbit warrens are located throughout the site, including in and around S3 and S4 (TN5), and just beyond the eastern site boundary (TN6).

Several brown hares *Lepus europaeus* were spotted on the site during the survey, most notably along the eastern site margin.

Additional observations were made in February 2021, as detailed below:

- A recently excavated hole was identified on the northern aspect of the vegetated mound, approximately 18m north of S7, at SP 70657 88838 (TN8). Although the entrance is fairly large with a large amount of freshly excavated earth, an inspection inside revealed that the tunnel narrows and becomes a size and shape more typical of rabbit. Furthermore, no evidence of badger(s) was displayed at the entrance; therefore, it is classified as a rabbit burrow.
- There are five holes along the hedgerow bounding the site to the south, immediately to the east of S6, spanning between SP 70367 88527 and SP 70363 88528 (TN9). The eastern-most hole, situated approximately 3m south of the site boundary (north-facing), is of a size and shape typical of a rabbit burrow. The remaining entrances, situated beneath the fence-line and which are south-facing, were inspected and no field signs indicative of badger(s) were identified within the entrances themselves. Furthermore, a rabbit was spooked and exited from one of the entrances during the survey. Badger paw prints and badger hairs were, however, found along a badger path beneath the fence in the vicinity of these rabbit holes, indicating a badger activity in this area.

## 4. DISCUSSION

### 4.1 Summary

In summary, ten badger setts are present on the site; S1 (active main sett), S2 (active annex sett), S3 (active annex sett), S4 (disused outlier sett), S5 (disused outlier sett), S6 (active outlier sett), S7 (active subsidiary sett), S8 (active outlier sett), S9 (active subsidiary sett) and S10 (active subsidiary sett).

The extent of badger activity observed throughout the site between September 2020 and February 2021 is indicative of a large social group present at the site.

The level of activity observed at S1 has not changed significantly between September 2020 and February 2021, with activity levels at this sett remaining consistently high. Given that S1 has remained continuously occupied by badgers and with high levels of activity consistently observed during visits at several times of the year (in September, November and February), and based upon the large number of entrances and spoil heaps, well-worn paths leading between the sett entrances, presence of bedding material and numerous large and fresh latrines, this sett is considered with a high degree of certainty to be a main sett.

All other setts (S2 to S10) are located between 10m and 370m of S1. S2 to S10, in the context of mitigation and compensation, can be regarded as 'non-main setts'.

Overall levels of badger activity across the site have changed significantly throughout the three survey visits undertaken by Ramboll (between September 2020 and February 2021):

- Areas beyond 100m of S1 evidenced lower levels of badger activity in November 2020 than previously observed in September 2020, while latrine density and foraging activity in areas immediately surrounding S1 were observed to be higher. Whilst they do not hibernate, badgers may enter a period of torpor over the winter when they become less active and may have decreased ranges, foraging in closer proximity to their setts.
- S3 became active at some point between November 2020 and February 2021, with new entrances excavated or disused entrances/ rabbit holes re-opened by badger(s). Levels of badger activity in the area around this sett were noted to have increased significantly. Additional setts (S7 – S10) identified in February 2021 are considered most likely to have been disused setts or rabbit warrens which have been re-opened by badger(s) at some point between November 2020 and February 2021 (or potentially setts which were active but had low levels of badger activity in autumn 2020 and have since seen a significant increase in badger activity in early 2021). This is evidenced by fresh earth removal at these additional setts (and with several entrances which appear to have been recently excavated) and a significant increase in the activity noted along badger paths in this area of the site (large number of fresh paw prints and fresh latrines around S7 – S10).

These differences in observations between late 2020 and early 2021 could potentially be attributed to seasonal fluctuations in badger activity and behaviour, coupled with the assumed large number of badgers which occupy and pass through the site. Badger cubs are typically born between mid-January and mid-March and during this time, it is possible that badgers occupying breeding setts (particularly younger individuals, born during the previous year) may be pushed out of these setts and forced to find or excavate new setts throughout the wider environment. This could potentially be a contributing factor that may explain the differences in the status of badgers on the site between September/ November 2020 and February 2021.



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#### 4.2 Assessment of Importance of Ecological Features

In accordance with CIEEM guidance, the site is considered to be of Local Importance for badger(s).

## 5. CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Impacts

S1 – S10 are all situated within the proposed development footprint. In the absence of mitigation and based on the current status of badgers and their setts on the site, the proposed development would result in the destruction and/ or damage of seven active badger setts, the disturbance of badgers using those setts and potentially the injuring/ killing of badgers occupying those setts.

Given the extensive use of the whole site by foraging and commuting badgers, it is considered that there is a high risk of impacting upon foraging/ commuting badgers (such as badgers becoming trapped in excavations) during the construction phase of the development.

### 5.2 Mitigation

#### 5.2.1 Pre-Commencement Check

A pre-commencement walkover by a suitably-experience ecologist would be required to update the status of badger setts on the site immediately prior to the implementation of the mitigation strategy. This will involve an inspection of S1 to S10 and a search for any potential new setts. Depending on the findings of this walkover it may then be necessary to undertake further monitoring should sett closure be required.

Particular attention should also be paid to existing rabbit burrows/ warrens identified throughout the site, notably at SP 70367 88527 to SP 70363 88528, and at SP 70657 88838. Given the high degree of badger activity around these areas and the presence of nearby badger setts, these holes are vulnerable to being opened up by badger(s) during a short time period.

#### 5.2.2 Sett Retention

The favoured mitigation option would be to re-design the development such that all active setts (S1 – S3 and S7 – S10) can be retained with a minimum 30m safe stand-off area around each sett. Safe stand-off areas should be created under the supervision of an Ecological Clerk of Works (ECoW) and be demarked using suitable fencing, raised 300mm off the ground to allow badger passage underneath.

If S4, S5 and S6 remain disused, these setts may be destroyed, under the direct supervision of an ecologist.

Regular checks by an ecologist would be required throughout the construction period to check the condition of stand-off fencing and that the fencing remains an appropriate distance from retained setts.

It is understood that, due to the proposed footprint of the new development and the current extent of badger setts on the site, sett retention may be unfeasible. If it is deemed that this strategy has become unworkable, unfeasible or otherwise insufficient in protecting badgers and their setts at any time during the development, works should immediately halt where they might cause a breach in the legislation and a new strategy be designed and implemented.

#### 5.2.3 Sett Closure

If the development cannot be re-designed in a way that allows the retention of active setts, it will be necessary to close S1, S2, S3, S7, S8, S9 and S10 permanently under a badger development licence from NE. A licence can be applied for once planning permission is granted. Badger licences are valid only between July and November, inclusive.

Sett closure will require the installation of one-way gates upon all entrances of all active setts to be closed. Badger gate design, installation/ supervision of installation and monitoring will be undertaken by the licenced ecologist/ accredited agent in conjunction with Natural England

Technical Advice Note TIN025<sup>10</sup>. In addition to the gates it is proposed that badger proof weld mesh is installed around the setts to prevent badgers trying to dig back into the setts.

Following the completion of monitoring (as specified in Section 5.2.3, below), the gates and weld mesh should be left *in situ* due to the potential for badgers trying to dig back in; removing the gates/ mesh and destroying the sett mechanically may provide an opportunity for badgers to dig back in. It is recommended that gates and weld mesh are removed immediately prior to the start of construction works in that area of the site.

If S4, S5 and S6 remain disused, these setts may be destroyed, under the direct supervision of an ecologist.

#### 5.2.4 Monitoring

The one-way gates installed upon S1, S2, S3, S7, S8, S9 and S10 will be monitored every three days after installation, for evidence of badger activity. The monitoring period will include the positioning of a wildlife camera trap and/ or sticks at each of the gate entrances for 21-days to record badgers leaving the setts.

Once 21 days of monitoring have been undertaken, with no sign of badger activity, the gates will be locked until the setts can be mechanically destroyed using an excavator. Once the gates have been closed and locked, the licenced ecologist/ accredited agent will undertake a check once a week prior to the setts being mechanically destroyed, to ensure that the gates remain locked and badgers have not excavated new entrances.

Badgers can potentially establish new setts, re-open disused setts overnight and expand larger rabbit warrens (and this appears to have occurred at the site, to date, therefore the risk of this is considered likely to be high). Regular checks (we recommend monthly) by an ECoW are recommended throughout the remainder of the construction period. If previously disused setts become active or new setts are excavated at any time before or during construction, a suitable mitigation strategy should be implemented.

#### 5.2.5 Compensation

If S1 is closed under licence, the provision of an artificial badger sett will be required to compensate for the loss of a main sett. The artificial sett should be created at least six months (but ideally 12 months) prior to the closure of the natural sett and the natural sett should only be closed when the artificial sett displays signs indicating its use by badger(s). It should be sited in a suitable location (far enough away from the new development to avoid disturbance but at a distance which is easily commutable from badgers from S1) and be constructed using adequate chambers and tunnels which replicate as much as possible the bulk of the natural sett it replaces. Potential impacts upon neighbouring land should also be explored. The exact location and specifications of the artificial sett would need to be discussed and agreed with the client and landowner.

Despite being 'non-main setts', the closure of S2, S3, S7, S8, S9 and S10 may require additional artificial setts to be created, given the significant impact of closing a large number of setts would have on the badger population. This would therefore be discussed in Natural England.

Due to the large size of the main sett (S1) and evidence suggesting it is long established, badgers are likely to have a high affinity for this sett and therefore it is considered unlikely to be a straightforward sett closure. Additional measures will be required to encourage badgers to use the artificial sett and a longer than the standard 21-day closure period is anticipated for the main sett.

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<sup>10</sup> Natural England (2011). Technical Advice Note (2nd ed) (TIN025): Using one-way gates on badger sett entrances. Natural England, Bristol.

### 5.2.6 Other Provisions

To avoid impacts upon badgers foraging and commuting through the site during construction, avoidance measures should be followed. These measures will form part of an ecological management plan or Construction Environmental Management Plan (CEMP) and shall include (but are not limited to) the following:

- All work should be undertaken during daylight hours and no artificial lighting should be used.
- Excavation work and heavy machinery should be kept well away from where it could result in damage to an active badger sett or disturbance to any badger occupying a sett.
- Fires and chemicals should not be used within 30m of any active sett.
- Access between setts and foraging/ watering areas should be maintained or new ones provided.
- Badger paths should not be blocked at any time.
- Any trenches should be covered at the end of each working day, or include a means of escape for any animal falling in.
- Any temporarily exposed open pipe system should be capped in such a way as to prevent badgers gaining access, as may happen when contractors are off site.
- The creation of features which could be by badgers to excavate setts should be avoided. Temporary soil heaps arising from construction works should be sited upon hardstanding, left uncompacted and not allowed to grass over.
- Any dangers within the work site to badgers will be identified and reported to the ECoW.
- No dogs should be taken onto the site by any of the workforce.

### 5.3 Enhancement

In order to comply with planning policy<sup>11,12</sup>, and as a general enhancement for badgers across the wider MoJ site, additional biodiversity enhancement measures should be provided.

Enhancements could include (but are not limited to) the following:

- The planting of new, fruit and nut-bearing trees throughout the MoJ land to provide a future food source for badgers.
- Implementation of traffic calming measures (such as speed bumps) along Welland Avenue to take account of increased vehicular movement along this road to access the new prison to allow safe passage of commuting badgers.
- Creation and retention of short-sward grassland areas (such as in the western portion of the larger MoJ site) to provide a future foraging resource for badgers.

### 5.4 Other Species

Incidental sightings of brown hare were made during the badger survey(s), both in November 2020 and in February 2021. As this species is present on the site, suitable alternative habitat, or habitat enhancements, should be provided if a significant area of brown hare habitat is removed by the development. This could include areas of new grassland with scrub margins and depressions in the ground in which hares can hide. Brown hare surveys are not considered necessary based on the current proposals, given that sufficient suitable habitat to sustain this species is likely to remain in the surrounding area.

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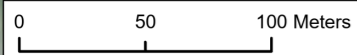
<sup>11</sup> Department for Communities and Local Government (2019). National Planning Policy Framework (NPPF). London. HMSO.

<sup>12</sup> Defra (2010). Natural Environment White Paper. The natural choice: securing the value of nature. [online] Available at: <https://www.gov.uk/government/publications/the-natural-choice-securing-the-value-of-nature>

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## APPENDIX 1 FIGURES



**Legend**

- Proposed Development Footprint
- ⊙ Target Notes
- Badger Paths
- Sett 1
- Sett 2
- Sett 3
- Sett 4
- Sett 5
- Sett 6
- Sett 7
- Sett 8
- Sett 9
- Sett 10

**Badger Field Signs**

- Foraging
- Hair
- Latrine
- Paw Prints

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Figure Title  
**Figure 1: Badger Survey**

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Project Name  
**SE Prisons**

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Project Number <b>1620010134</b>	Figure No. <b>1</b>
Date <b>February 2021</b>	Prepared By <b>NJ</b>
Scale <b>1:3,000 @A3</b>	Issue <b>1</b>

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Client  
**Mace**

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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Target Note	Description
TN1	Underground pipe which leads from the field and into a hedgerow/ dry ditch, previously identified as a badger path in September 2020 but with no indications of badger use in November 2020
TN2	Badger path extending along hedgerow contains a very large number of badger paw prints, suggesting regular use
TN3	Large numbers of badger paw prints are evident along the farm track
TN4	Badger foraging signs were found along a significant stretch of the verge of Welland Avenue
TN5	A rabbit warren featuring several holes is present immediately surrounding Sett 4 (S4)
TN6	A rabbit warren is present in a vegetated soil mound located adjacent to the access track
TN7	Extensive badger foraging was noted throughout the grassland areas surrounding Sett 1 (S1)
TN8	Recently excavated hole at SP 70657 88838, typical of rabbit and with evidence of badger(s); however, this is vulnerable to occupation by badger(s) and as such, should be monitored
TN9	Five holes along the hedgerow/ fence spanning between SP 70367 88527 and SP 70363 88528, currently in use by rabbit and with no field signs indicative of badger(s) identified at the entrances at the time of the survey; however, these are vulnerable to occupation by badger(s) and as such, should be monitored

Title: Target Notes	Client: Mace Group
Site: Raven	Date: December 2020