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PRELIMINARY ENVIRONMENTAL INFORMATION REPORT FOR THE EAST NORTHANTS RESOURCE MANAGEMENT FACILITY (ENRMF) WESTERN EXTENSION

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PRELIMINARY ENVIRONMENTAL INFORMATION REPORT FOR THE EAST NORTHANTS RESOURCE MANAGEMENT FACILITY (ENRMF) WESTERN EXTENSION

1 NATURE CONSERVATION

1.1 INTRODUCTION

1.1.1 This report describes the existing environment in the application site with respect to biodiversity. It provides the methods used to obtain the relevant information, describes the current baseline and the potential effects of the planned expansion upon biodiversity on the site and surrounding area. It also outlines proposed avoidance, reduction and restoration measures to help mitigate these potential effects.

1.2 LEGISLATION AND GUIDANCE

Wildlife legislation

1.2.1 The following wildlife legislation, relevant to the proposed development, has been consulted:

- The Wildlife and Countryside Act, 1981 (and as amended) (WCA).
- The Protection of Badgers Act, 1992 (PBA).
- The Hedgerow Regulations, 1997.
- The Natural Environment and Rural Communities Act, 2006 (NERC).
- The Conservation of Habitats and Species and Planning (Various Amendments) (England and Wales) Regulations, 2018.

National and local planning policy and other guidance

1.2.2 The following policy documents are relevant to nature conservation and have been consulted:

- The National Planning Policy Framework (NPPF), 2019, Policy 15.
- Biodiversity Supplementary Planning Document (SPD) for Northamptonshire, 2015.
- North Northamptonshire Joint Core Strategy 2011-2031 (NNJCS), particularly Policy 4.
- Northamptonshire Minerals and Waste Local Plan (MWLP), 2017.
- Northamptonshire Biodiversity Action Plan (BAP) 2nd Ed (2008) version1.4, 2019.
- Northamptonshire Wildlife Sites Criteria (2007), updated 2014.

1.3 CONSULTATIONS

1.3.1 An initial meeting was held with Natural England regional and local staff, mainly to discuss possible impacts of the scheme on the Collyweston Great Wood and Easton Hornstocks National Nature Reserve (NNR), access, other sources of information and potential aftercare design to enhance the NNR.

1.3.2 Due to Covid-19, all recent consultations have been by exchange of e-mails and phone calls, including with FE Fineshades staff, the 'Back from the Brink' team and with Cambridgeshire bird ringers and bat surveyors, mainly to discuss and exchange information on survey results and the movements of animals between the two adjoining woodlands.

1.3.3 Further consultations are planned when possible to discuss possible impacts, mitigation measures and aftercare design and management.

1.4 METHODS

Desk study

1.4.1 The Northamptonshire Biological Records Centre, Northamptonshire Bat Group and Natural England's 'Nature on the Map' website were consulted to identify any pertinent sites designated for nature conservation, together with records for protected or notable species.

Field surveys

- Based on the Preliminary Ecological Appraisal (PEA) results (see Appendix 1), the zone of influence was considered to be no more than 1km beyond the site boundaries for any feature.
- The PEA also scoped out for further consideration aquatic mammals (specifically otters and water voles) and white-clawed crayfish due to a lack of suitable habitat and absence of any earlier records.
- All surveys are undertaken by professional ecologists experienced in and (as necessary) licenced for carrying out such surveys and handling each species or group.

1.4.2 Plant species and communities:

- A Phase-1 habitat survey of the proposed western extension was undertaken during the PEA in 2018 as per Joint Nature Conservation Committee (JNCC, 2003).
- Further plant recording in each habitat, including the adjacent woodlands, was undertaken from April to August in both 2019 and 2020.
- A habitat update survey of the current ENRMF was undertaken in June 2020.

1.4.3 Amphibians:

- Once all access permissions were in place, six great crested newt (GCN) evening survey visits were made during spring 2020 to all suitable waterbodies within 250m of the site boundaries. All waterbodies were surveyed using a combination of methods, as per Natural England, 2015.
- The suitability of all waterbodies surveyed for GCN was examined using the Habitat Suitability Index (HSI) (Oldham *et al.*, 2000).

1.4.4 Reptiles:

- Approximately 200 artificial cover objects (ACOs), made from 0.5m² black, corrugated bitumen sheets, have been in place for several years around the margins of the existing ENRMF as part of on-going Environmental Management and Aftercare Plan (EMAP) monitoring. These ACOs are checked monthly from March to September every year in weather conditions when any reptiles present could reasonably be expected to be active (English Nature, 1994); this is continuing.
- A further 190 ACOs were placed around the margins of the proposed western extension in areas of suitable habitat in March 2020.
- Between March and late September 2020, these ACOs were checked 15 times. Whilst walking between the ACOs, reptiles were also searched for by watching and listening for movement in the undergrowth.
- An additional three early-season visits were made to the site (and adjacent habitats) to search specifically for basking adders as per standard guidelines (Amphibian and Reptile Group UK, 2018).

1.4.5 Birds:

- From March to June 2019, six breeding bird survey visits were undertaken by walking all habitats within the proposed western extension and mapping all birds seen/heard, together with activity codes, following Marchant, 1983. A further three breeding bird survey visits were made to the current ENRMF from April to June 2019 (as part of EMAP monitoring).
- Twelve wintering bird surveys of the proposed western extension area were undertaken between October 2018 and March 2019, comprising a combination of dawn and dusk visits with walked transects and vantage point counts. The method used was specifically designed for the site.
- Additional bird records were made during other fieldwork visits, particularly during evening newt and bat surveys when nocturnal species such as owls are active.

1.4.6 Bats:

- All surveys followed Collins, 2016.
- No existing buildings or structures will be affected by the application and the predominantly arable land-use scape provides sub-optimal foraging habitats for bats.
- Preliminary Roost Assessment (PRA) of all trees on the site was undertaken with each tree examined from the ground for Potential Roost Features (PRF) and categorised based on the features present.
- Dusk emergence watches were undertaken on trees with high bat-roost potential.
- Transects designed to sample the range of available habitats within the site were undertaken. Two surveyors walked in parallel, one sampling the central, open arable area, the second covering the edge habitats (woodland and hedgerows) with better connectivity.

- To determine species assemblage, assess habitat use and bat activity, static bat detectors were run overnight for seven consecutive nights on a monthly basis April to October 2020.

1.4.7 Badgers:

- In February 2019, badger activity signs were searched for as described in Harris *et al.*, 1994. A handheld Trimble Geo7X GNSS unit was used to accurately map sett locations.
- Records of new setts were collected during all other survey visits and a full search for setts and signs was repeated in February 2020.
- A bait-marking survey (Harris *et al.*, 1994) involving all the active setts known at that time, was also undertaken in February and March 2019 to determine the likely number of badger territories in the area potentially affected by the proposals.

1.4.8 Dormice:

- Surveys for the presence/presumed absence of dormice are carried out using Natural England standing advice (Natural England, 2015). In March 2020, 50 dormouse tubes were placed in the limited suitable dormouse habitat available in the proposed western extension (scrub and hedgerows) potentially affected by the proposals. These tubes were checked monthly from April to September 2020.
- An additional 25 dormouse nest boxes have been present within woodland immediately north of the existing ENRMF since April 2016 as part of the EMAP monitoring. These are checked routinely at least three times each year between April and September but during 2019 and 2020, they were checked monthly from April to September.
- A search for hazelnuts distinctively-chewed by dormice was also undertaken within suitable woodland adjacent to the site during February 2020.

1.4.9 Invertebrates:

- A scoping visit was carried out to the proposed western extension area on 4 April 2019, followed by detailed surveys in 2019 (four visits monthly from May to August) and in 2020 (five visits monthly from May to September, to be completed). The 2020 visits include sampling of the adjacent woodlands with specific permissions in place.
- A combination of methods was used targeting six principal groups, as recommended in Natural England guidance (Drake *et al.*, 2007) for assessing features and habitats for conservation assessment.

1.4.10 Trees:

- In August 2019, a tree survey to BS 5837 was carried out over the whole site. This included determining root protection areas for trees beyond the ditches bordering the arable areas.

1.5 BASELINE CONDITIONS

Desk study results

1.5.1 The closest European Natura 2000 sites are Rutland Water Special Protection Area/Ramsar site (which is approximately 8.8km to the northwest of the application boundary) and Barnack Hills and Holes Special Area for Conservation (which is 7.5km northeast of the application boundary). Due to their distance, the present proposal will not have a significant effect on the integrity of either of these sites.

1.5.2 The search for all statutory sites within 5km and non-statutory sites and species within 2km of the site provided:

- Ten statutory sites, the closest being Collyweston Great Wood and Easton Hornstock NNR and Site of Special Scientific Interest (SSSI) adjacent to the northeast.
- Two non-statutory sites, the closest being Fineshade Woods Local Wildlife Site (LWS) adjacent to the west.
- Occasional dormouse records for Fineshade Woods, most notably the evidence of nests in 2017, 750m to the west. Additionally, an adult male was also found during a check of dormouse boxes in Fineshade Woods in 2020, approximately 500m to the west (Paul Nunns of Forest Enterprise, pers. comm.).
- Occasional records for badgers in the surrounding landscape, the most recent being from Fineshade Woods in 2014, 1.6km to the southwest.
- Abundant recent records for adders, common lizards and slow worms from Fineshade Woods. Scattered records for grass snakes.
- Abundant recent records for GCNs, smooth- and palmate newts from Fineshade Woods. Two 2014 records for common toad roughly 2km to the southwest.
- Records for 54 bird species including 10 on Schedule-1 of the WCA, with the majority from Fineshade Woods.
- Many records of invertebrates, especially butterflies and moths, with the majority from Fineshade Woods.

Plant species and communities

1.5.3 The habitats present within the site boundary currently comprise:

- Two arable fields.
- Hedgerows - one bordering the ENRMF and one lying between the two arable fields.
- Strips of grassland bordering these hedgerows and the two arable fields.
- Wasteland (ruderal) vegetation of the ENRMF, with associated areas of hardstanding, buildings, strips of grassland, hedgerows, ditches and waterbodies (two actively drawn-down for operational purposes and the remainder within the GCN refuge).
- Isolated trees, small areas of scrub and scrubby broadleaved woodland.

1.5.4 The only habitats currently considered to be S41 habitats (NERC, 2006) are the hedgerows and the managed waterbodies on the ENRMF site.

Amphibians

1.5.5 All five common species have been regularly recorded:

- GCNs, originally translocated from the ENRMF site, have continued to be recorded in the original refuge area created immediately north of the landfill (within the DCO).
- Smooth newts and common toads are also recorded regularly in this area, with palmate newts and common frogs less common.
- All five species were recorded during the 2020 surveys.

Reptiles

1.5.6 All four common reptiles are known from the site:

- Common lizards and slow-worms have been recorded annually in the refuge area, with adders and grass snakes also in some years.
- Up to the end of June 2020, the reptile surveys have found particular concentrations of common lizards and slow worms along the boundaries of the proposed extension area, i.e., on western edge of Collyweston Great Wood NNR, on the eastern edge of Fineshade Woods and in the refuge area on the northern edge of the ENRMF.
- No adders have been recorded in 2020 but there were occasional adder records during 2019 along the hedgerow between the two arable fields.
- Single grass snakes have been recorded along the eastern edge of Fineshade Woods during 2020.

Birds

1.5.7 A fairly good assemblage was recorded but there is limited interest in the two arable fields.

- Regular breeding bird surveys of the ENRMF have recorded several pairs of skylark, linnet and yellowhammer, with occasional little ringed plovers. Red kites visit to forage.
- The 2019 breeding bird survey of the western extension recorded 45 species, including breeding skylark, with most other species, including red kite and peregrine, visiting from the surrounding habitats.
- The wintering bird survey recorded 37 species, mainly passerines, feeding on the arable field and hedgerows. No wintering waders, such as lapwings or golden plover, were recorded.

Bats

1.5.8 Eight bat species were confirmed as using the site's habitats.

- No evidence of a roost site was recorded in any of the trees with PRFs.

- Activity over the open arable fields away from the edge habitats was low.
- In June, activity levels at certain woodland and edge points showed consistent peaks, with an increased number of calls in relation to sunset and sunrise throughout the sample periods. This indicates maternity roosts in the adjacent woodlands to the east and west, including for barbastelle.
- The location of Core Sustenance Zones (CSZ) surrounding a maternity roost will be taken into account when determining biodiversity net gain in association with Bat Conservation Trust (BCT) Guidance (undated).

Badgers

1.5.9 Badgers are a regularly occurring species within the site and on adjacent habitats.

- Badgers were already known to use the area from the ecological monitoring surveys at ENRMF and low numbers of roadkill records.
- The February 2020 badger activity update survey located 24 setts but only three of these, all small, are within the site and are located on boundary ditch banks in the north of the northern arable field.
- Setts within adjacent land include four that are considered main setts due to their size/activity levels and from the results of the bait-marking.
- Badgers use much of the site, especially the grassy margins of the arable fields, for foraging.

Dormice

1.5.10 Although known from the general area, there is restricted suitable habitat for this species on site.

- The desk study indicated that dormice are not known from Collyweston Great Wood NNR but there are occasional records from Fineshade Woods to the west, most recently just 500m to the west of the extension area.
- No dormice (or their activity signs) have been found during any of the surveys to date for this application or as part of the many years of monitoring at the ENRMF.

Invertebrates

1.5.11 The site is used by many notable invertebrate species, most of which currently originate from adjacent habitats.

- Three-hundred species from the target groups were recorded during the surveys to the end of June 2020. Of these, 22 species have a national status, though some of these will be revised downward owing to their recent range expansions.
- Overall, the site has a rich invertebrate fauna, largely associated with deadwood, woodland fringe and flower-rich habitats.

- Noteworthy species include the rare and threatened S41 black hairstreak butterfly *Strymonidia prun*i associated with tall, unmanaged blackthorn *Prunus spinosa*, found along rides in the woodland to the north and west and a colony of the uncommon S41 white-letter hairstreak butterfly *Strymonidia w-album*, which is restricted to elms *Ulmus* sp.
- The deadwood invertebrate resource, represented by a strong suite of beetles and flies, is a noted feature, with these species all using the interface between the woodland and the site. The majority of the species probably breed in the adjacent woodland but frequent the grassland edge to the arable fields, within the site boundary to forage for nectar and to sunbathe.

Ecologically Important Features of the proposal site

1.5.12 The following are considered Ecologically Important Features:

- The habitats and plant communities that provide habitat for important species, including amphibians, reptiles, badgers and invertebrates.
- The amphibian and reptile assemblage.
- Bats, particularly in respect of the adjacent woodlands.
- Badgers.
- The invertebrate assemblage, particularly species using the site/woodland interface.

1.5.13 The following are not considered significant:

- Plants and plant communities *per se*, since all species are common and widespread.
- Breeding and wintering birds, which are considered resilient to the impacts (which is likely to be long and drawn-out, with concurrent restoration) and are likely to benefit from the restoration.
- Dormice, since there is currently restricted suitable habitat for them on the site (hedgerows and scrubby woodland) and surveys have found no evidence of their presence there to date.

1.6 POTENTIAL EFFECTS

1.6.1 Following consideration of the ecology of these species and the means of working, there is the potential for the following effects during construction and operation (which effectively form a continuous activity):

- Killing, injury and disturbance of protected and notable species. Disturbance has the potential to cause stress to mammals and birds, reducing their resilience and breeding success, thereby affecting their conservation status locally.
- Severance of habitat, disrupting regular migration, commuting and foraging routes used by mobile animals.
- Loss of edge habitat, including flower-rich grassland bordering the neighbouring woods.

- Effects of dust on adjacent sensitive habitats, especially Collyweston Great Wood NNR.
- Hydrological effects on adjacent trees, particularly in Collyweston Great Wood NNR.

1.7 POTENTIAL MITIGATION MEASURES

1.7.1 Options for mitigation, planned and under consideration, include:

- Clearing vegetation outside the bird nesting season.
- Erecting (under licence) a steel fence around the whole of the working area, thus preventing animals from accessing it and preventing killing or injury to them. This fence will lie on or beyond the root protection area of adjacent trees or hedgerows; no access to plant or vehicles will be allowed within it.
- This fence will also protect and reduce the loss of grassland for commuting or feeding (including by invertebrates) and maintain habitat connectivity so far as is possible.
- Retaining all trees on site if possible and carrying out additional surveys and precautionary felling practices if trees with bat PRFs must be removed.
- Avoiding/minimising illumination where possible and ensuring that any lighting that is necessary is localised and directed away from habitats used by nocturnal species such as bats, badgers and some birds so reducing or preventing detrimental effects on them.
- Best practice measures will be used to prevent or reduce dust reaching sensitive habitats.
- Means to prevent adverse hydrological effects on adjacent trees will be set in place.

1.7.2 With the planned avoidance, protection and mitigation measures in place, it is currently considered likely that there will be no significant adverse impacts on biodiversity throughout the operational stage, with a large positive net gain on completion.

1.8 ASSESSMENTS STILL TO BE COMPLETED

- Reptiles - on-going ACO checks until September 2020.
- Bats - on-going monthly static and tree surveys until September 2020.
- Badgers - on-going monitoring during other site visits.
- Dormice - on-going monthly checks of dormice tubes and boxes until September 2020.
- Invertebrates - on-going monthly surveys until September 2020.
- Biodiversity Net Gain calculations are on-going in draft, examining the potential Landscape/Aftercare Scenarios.

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APPENDIX 1

PRELIMINARY ECOLOGICAL APPRAISAL

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PRELIMINARY ECOLOGICAL APPRAISAL:

ENRMF WESTERN EXTENSION, NORTHAMPTONSHIRE

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EXECUTIVE SUMMARY

Purpose

ESL (Ecological Services) Limited has been commissioned by MJCA, on behalf of Augean PLC, to undertake a Preliminary Ecological Appraisal of land west of the East Northants Resource Management Facility near Kings Cliffe, Northamptonshire, to inform the submission of a planning application for a western extension to the existing site. The purpose of this Preliminary Ecological Appraisal is to:

- Identify the proposed scheme's likely zone of influence and any important features that could be affected.
- Identify the scope of further information necessary to inform an ecological impact assessment, together with timings.
- Identify initial opportunities to avoid, minimise or mitigate any effects so that they might feed into the scheme design.

Methods

The Northamptonshire Biological Records Centre, Northamptonshire Bat Group and Natural England's 'Nature on the Map' website were consulted to identify any pertinent sites designated for nature conservation, together with records for protected or notable species. An Extended Phase-1 Habitat Survey was undertaken on 30 October 2018.

Key Issues

It is considered possible (without mitigation) that the proposed scheme may have an adverse effect on two immediately adjacent sites designated for nature conservation (Collyweston Great Wood/Easton Hornstocks National Nature Reserve/Site of Special Scientific Interest and Fineshade Woods Local Wildlife Site).

The following important features were identified as a material consideration requiring further investigation to inform an ecological impact assessment:

- Hedgerows, trees and woodlands.
- Breeding and wintering bird assemblage, status and habitat use.
- The presence of badgers.
- Habitats potentially used by dormice.
- Trees with potential for use by roosting bats.
- Habitats suitable for use by amphibians (including great crested newts), common reptiles and notable invertebrate species.

Summary

Based on the limited amount of work undertaken to date, it is considered feasible that any adverse impact arising as a result of the proposed scheme can be avoided, minimised or mitigated and that any

residual effects can be addressed so that the scheme meets with published nature conservation objectives.

PRELIMINARY ECOLOGICAL APPRAISAL: ENRMF WESTERN EXTENSION, NORTHAMPTONSHIRE

1 INTRODUCTION

1.1 ESL (Ecological Services) Limited (ESL) has been commissioned by MJCA, on behalf of Augean PLC, to undertake a Preliminary Ecological Appraisal (PEA) of land west of the East Northants Resource Management Facility (ENRMF) near Kings Cliffe, Northamptonshire. The PEA is to inform the eventual submission of a planning application for a western extension to the existing site.

1.2 ESL has been involved with ecological appraisals and surveys of the existing ENRMF site for many years now, undertaking annual monitoring surveys there and therefore has a good understanding of the species likely to be present in the general area.

2 SCOPE OF WORK

2.1 The purpose of this PEA is to:

- Identify the proposed scheme's likely zone of influence and identify any important features that could be affected.
- Identify the scope of further information necessary to inform an ecological impact assessment, together with timings.
- Identify initial opportunities to avoid, reduce or mitigate any effects so that they might feed into the scheme design.

3 PLANNING POLICY, LEGISLATION AND GUIDANCE

3.1 WILDLIFE LEGISLATION

3.1.1 The following wildlife legislation is potentially relevant to the proposed development:

- The Wildlife and Countryside Act, 1981 (as amended) (WCA).
- The Protection of Badgers Act, 1992 (PBA).
- The Hedgerow Regulations, 1997.
- The Natural Environment and Rural Communities Act, 2006 (NERC).
- The Conservation of Habitats & Species Regulations, 2017 (as amended).

3.2 NATIONAL PLANNING POLICY

3.2.1 The National Planning Policy Framework (NPPF), 2018, sets out the Government's planning policies for England and how these are expected to be applied. Section 11, 'Making effective

use of land', sets out the need for strategic planning, which considers the many functions that land parcels may need to fulfil and ensures that multiple benefits, including net environmental gains, are obtained.

3.2.2 Section 15 of the NPPF states that planning policies should contribute to and enhance the natural and local environment. It specifies the obligations of Local Authorities and the UK Government regarding statutorily-designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system.

3.3 LOCAL PLANNING POLICY

Northamptonshire County Council

3.3.1 Northamptonshire County Council issued a Supplementary Planning Document (SPD) on Biodiversity in August 2015. This is a statutory Local Development Document (LDD) prepared under the 2004 Planning and Compulsory Purchase Act (the “2004 Act”). It is intended to cover the whole of Northamptonshire and will be adopted by each Local Planning Authority as a statutory SPD.

3.3.2 This document introduces the requirement to integrate biodiversity into the development process and provides the policy basis for this. It then sets out a checklist for ensuring this and explains each stage of the process.

East Northamptonshire District Council

3.3.3 The adopted development plan for district-level planning matters now comprises the North Northamptonshire Joint Core Strategy 2011-2031 (NNJCS) together with saved policies from plans adopted in 2011 and 2006 for different parts of the District. According to the parish-by-parish index of policies, all relevant polices for Kings Cliffe parish are included in the NNJCS. Specifically, the latter provides, under Policy 4 - 'Biodiversity and Geodiversity', that a net gain in biodiversity will be sought and sets out how this will be achieved, including by:

- Protecting existing biodiversity and geodiversity assets.
- Enhancing ecological networks by managing development and investment.
- Supporting, through developer contributions or development design, the protection and recovery of priority habitats and species linked to national and local targets.

3.3.4 This policy also refers specifically to the need for development proposals to take account of the Northamptonshire Biodiversity SPD.

Northamptonshire Minerals and Waste Local Plan (MWLP)

3.3.5 This document was adopted in 2017. It provides the land use planning strategy for minerals and waste-related development in the county and is the basis for investment in new minerals and waste development in Northamptonshire. Whilst being concerned specifically with

applications for planning permission for this purpose, its policies should not be read in isolation; rather, they are intended to be read in conjunction with national planning policy and legislation as well as European legislation and directives.

3.3.6 With this in mind, the MWLP sets out its Vision and Objectives, of which Objective 10 - 'Conserving and enhancing Northamptonshire's built and natural environment' is as follows:

Recognise Northamptonshire's environmental systems and landscape linkages in order to conserve and enhance the built and natural environment through ensuring sensitive working, and where necessary high standards of mitigation of potentially adverse impacts of minerals and waste development.

3.3.7 The rationale for this objective explains that it is intended to ensure 'that new or extended minerals and waste-related uses not only do not damage or destroy the county's existing environmental and natural assets but that opportunities are taken (including via restoration) to enhance existing and planned green infrastructure networks and to support the identified landscape character areas of the county'.

3.4 OTHER GUIDANCE

Northamptonshire Biodiversity Action Plan (BAP)

3.4.1 The original document was produced by the Northants Biodiversity Partnership in 2007 and updated in 2009. Its importance in identifying ways in which development can use it to enhance biodiversity gain is noted in the Biodiversity SPD. After describing how the BAP was prepared, its place in the development planning system and the general principles for protecting and enhancing biodiversity, the document provides 16 Habitat Action Plans (including hedgerows, meadows and ponds) and two Species Action Plans (for otter *Lutra lutra* and water vole *Arvicola amphibius*).

Northamptonshire Wildlife Sites Selection Criteria

3.4.2 Also produced by the Northants Biodiversity Partnership in 2007, this document was updated in 2014. In providing lists and target numbers for the indicator species of particular habitats, it is very useful in designing restoration plans to provide habitat enhancement, thus meeting the requirements of the statutory policies.

4 APPRAISAL METHODS

4.1 DEFINING THE ZONE OF INFLUENCE AND THE SITE

4.1.1 The zone of influence is the term given to the distance from the site at which an adverse effect could occur as a result of the activities associated with the proposed scheme. For the purpose of this PEA, the 'Site' is defined as the survey area shown on Figure 1

('survey area' provided by MJCA on 18 October 2018) but in some cases, the zone of influence may also include land beyond the site boundary.

4.2 DESK STUDY

4.2.1 The JNCC and Natural England 'Nature on the Map' websites were consulted for information on any internationally-important sites within 10km of the site, locations of any Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNR) within 5km of the site and for any Local Nature Reserves (LNR) within a 2km radius of the site.

4.2.2 Northamptonshire Biological Records Centre (NBRC) was asked to provide details of any non-statutory Sites of Nature Conservation Interest (SNCI) or Local Wildlife Sites (LWS) within 1km of the site. Records of any European Protected Species (EPS), UK protected species (WCA or PBA) or Species of Principal Importance, as listed by the Secretary of State in accordance with Section 41 (S41) of NERC, were also requested within 1km. Bat records are not held by NBRC so were specifically requested from the Northamptonshire Bat Group for up to 5km away.

4.2.3 A 1:25,000 scale Ordnance Survey map and aerial imagery were examined to identify ponds within 250m of the site as part of the assessment for potential use by great crested newts *Triturus cristatus* and to determine the site's overall landscape connectivity (or lack of) to the wider environment.

4.3 FIELD SURVEY

4.3.1 A Phase-1 Habitat Survey was undertaken by ESL ecologist Brian Hedley MCIEEM on 30 October 2018 in accordance with the standard survey method (Joint Nature Conservation Committee, 2010). All habitats were characterised by identifying the dominant and typical species and notes were made on adjacent land use to set the site in local context. In addition, invasive, non-native plant species listed under Schedule 9 of the WCA, such as Japanese knotweed *Fallopia japonica,* were particularly sought for.

4.3.2 All signs of use by species of conservation importance were recorded and a practical assessment was made for potential future use in season.

4.3.3 Prior to the site visit, a risk assessment was undertaken by the Project Manager to make all fieldworkers aware of any site-specific risks and of the required safe-working methods. These assessments are updated as required during the survey. ESL's lone-working buddy system was used during the survey.

4.3.4 Species recorded on the Site during the survey are referred to by their English names throughout the text with scientific names given as a species list in Appendix 1. English and scientific names of species not recorded during the survey (or recorded outside the Site) are given in the text where first mentioned. English and scientific names of higher plants are given according to Stace (2010).

4.4 CONSTRAINTS AND LIMITATIONS

4.4.1 The walkover was undertaken in late October, a time of year when species that could be present or that make use of the site might not be in evidence.

5 RESULTS

5.1 ZONE OF INFLUENCE

5.1.1 The activities normally associated with this type of development suggest the zone of influence is likely limited to an area approximately 1km from the site boundary during the construction and operational phases (the activities on site are effectively the same for both).

5.2 DESK STUDY

Designated Sites

5.2.1 A summary of statutory sites with nature conservation designations within 5km of the Site is given as Table 1. A summary of non-statutory sites within 1km of the Site is given as Table 2 (at this early stage, the aim is simply to identify any sites/species that could be affected by the development). A comprehensive desk study will be provided in the Ecological Impact Assessment report.

5.2.2 The locations of all designated sites within 1km of the Site are given in Appendix 2.

TABLE 1. SITES WITH STATUTORY PROTECTION WITHIN 5KM OF THE SITE

NAME, DESIGNATION AND DESCRIPTION	PROXIMITY TO THE SITE
Collyweston Great Wood and Eastern Hornstocks NNR and SSSI. Ancient coppice-with-standards woodland.	Immediately adjacent to the northeast.
Collyweston Quarries SSSI. Former limestone quarry with limestone grassland.	470m to west.
Collyweston Slate Mine SSSI. Geologically important site.	2.25km to north.
Kings Cliffe Banks SSSI. Limestone grassland.	2.45km to southeast.
Bedford Purlieus NNR and SSSI. Ancient coppice-with-standards woodland.	2.93km to east.
Bonemills Hollow SSSI. Limestone grassland.	3.38km to northeast.
Wakerley Spinney SSSI. Broadleaved woodland and neutral grassland.	3.40km to west.
Racecourse Farm Fields SSSI. Former limestone quarry with limestone grassland.	3.75km to northeast.
Luffenham Heath Golf Course SSSI. Limestone grassland.	4.65km to northwest.

TABLE 2. SITES WITH NON-STATUTORY PROTECTION WITHIN 1KM OF THE SITE

NAME, DESIGNATION AND DESCRIPTION	PROXIMITY TO THE SITE
Fineshade Woods LWS. Mixed plantation on ancient woodland site plus neutral grassland and ponds.	Immediately adjacent to west and south.
Collyweston Quarry Local Geological Site. An active quarry with important limestone formations.	530m to west.
Potential Wildlife Site-Category 1. Ref. 659. Mixture of ancient woodland, grassland and ponds.	Immediately adjacent to north.
Potential Wildlife Site-Category 1. Ref. 742. Part of existing ENRMF. Mixture of scrubby woodland, plantation, scrub, ditches, rough grassland and ponds (partly a great crested newt mitigation area).	Is partly within the Site (central woodland area).
Potential Wildlife Site-Category 1. Ref. 743. Part of existing ENRMF. Partly restored landfill to neutral grassland (in progress).	340m to east.

Protected or notable species

5.2.3 A summary of the recent (post-2000) available records of species with nature conservation designations is given as Table 3.

TABLE 4. SPECIES OF NATURE CONSERVATION INTEREST

SPECIES/GROUP	STATUS	PROXIMITY TO THE SITE
Great crested newts are well known from the area with 13 records supplied in addition to the known location immediately north of the ENRMF site, confirmed in 2018.	EPS, NERC S41.	Noted within pond about 8m east of Site.
Reptile records supplied comprised four common lizard, seven adder, one grass snake and five slow worm. All these species have been recorded on the ENRMF site in 2018.	NERC S41.	3m east of Site.
Bats are well recorded in the search area with records for nine species supplied (common and soprano pipistrelles, noctule, natterer's, barbastelle, brown long-eared bat, Daubenton's, Brandt's and whiskered bat. There are 62 roost records but none specifically from the Site. Several bat species have also been recorded during monitoring work at ENRMF, including a roosting Leisler's bat.	EPS, NERC S41.	Several locations within 5km and ESL records 250m east of site.
Six records for badger supplied, including roadkill records along the A43. Known to be common in area.	PBA	Several locations within 1km.
Twenty-four records for dormouse supplied, all from Fineshade Woods.	WCA, NERC S41.	1.5km to southwest.
Hundreds of bird records from the search area, including 19 Red List species, 18 S41 species and six species on Schedule-1 of the WCA (including red kite and crossbill, both potential local breeders).	WCA, NERC S41. Red List.	Many locations within 1km.
Many hundreds of invertebrate records supplied, especially butterflies and moths. Glow worms are known in general area.	NERC S41.	Several locations within 1km.

Other designations

5.2.4 The site is within Natural England's National Character Area (NCA) 92: Rockingham Forest, which is essentially a broad, low, undulating ridge underlain by Jurassic limestone that falls away from a prominent, steep, northern scarp overlooking the Welland Valley. Large areas of woodland remain a significant feature of the landscape and, while not forming continuous belts, the blocks of woodland often coalesce visually with hedgerow trees and smaller copses to increase the perception of extensive woodland cover across the landscape (Natural England, 2014).

5.3 FIELD SURVEY

Habitats, Plant communities and Plant Species

5.3.1 The bulk of the Site comprises two elongated arable fields divided by a hedgerow and a ditch. Other habitats on Site are rough grassland, further ditches and hedgerows, broadleaved woodland, scrub, a few isolated large trees and access tracks. The distribution of habitats on Site is shown on Figure 2. A view across the northern part of the site is given in Photograph 1. A list of all plant species recorded within the Site from the walkover is given in Appendix 1.

5.3.2 The northern arable field had a young cereal crop at the time of survey and a restricted range of arable 'weeds' such as field forget-me-not, dove's-foot crane's-bill and common field speedwell, primarily in the margins. There is a game cover crop in the south-western corner of this field that has a wider variety of arable weeds present, including many-seeded goosefoot, fat-hen, red dead-nettle and redshank. The southern arable field was bare at the time of survey with sparse arable weeds, mainly in the margins, including scarlet pimpernel, common field speedwell and barren brome.

Photograph 1. View north over northern part of Site.	**Photograph 2.** Rough grassland strip along margin of northern arable field.

5.3.3 Strips of rough grassland are found to the margins of the two arable fields, being particularly wide to the eastern side of the northern field (Photograph 2). Typically-dominant species are perennial rye-grass, Yorkshire-fog, tall fescue, tufted hair-grass, cock's-foot, red fescue and

creeping bent. Occasional species include wild parsnip, hoary ragwort, wood sedge, spiked sedge, glaucous sedge, wood small-reed and meadow buttercup. Occasional scattered scrub is present within this habitat, comprising various willows, hawthorn and elder. A few large trees (ash and pedunculate oak) are present within the rough grassland strip on the western side of the northern arable field.

5.3.4 The hedgerow dividing the two arable fields is trimmed, 2m high, 1.25m wide and dominated by hawthorn with blackthorn, dog-rose, wych elm, spindle, wild privet and a single large pedunculate oak standard near its eastern end (Photograph 3). Further hedgerows are found along the eastern Site boundary with the ENRMF and dividing the Site from another arable field. The section next to the ENRMF is partly trimmed (on the field side), 3-3.5m high, 2m wide and dominated by hawthorn with goat willow, dog-rose, blackthorn, grey willow and wild privet. The section bounding the arable field is trimmed, 2m high, 1.5m wide and dominated by hawthorn with blackthorn, dog-rose, ash and field maple (Photograph 4).

Photograph 3. Internal hedgerow in centre of site with large pedunculate oak standard (taken in May 2018).

Photograph 4. Hedgerow and track alongside eastern boundary of the site's southern arable field.

5.3.5 Small ditches are present wherever woodland bounds the Site (also alongside the internal hedgerow); all were dry at the time of survey but are likely to be damp or hold water during the winter months or after heavy rain. They typically support great willowherb, hard rush, tufted hair-grass and false fox-sedge (Photograph 5).

5.3.6 Broadleaved woodland is present in the central part of the Site and is mainly scrubby in nature, especially where it projects out into the south-eastern corner of the northern field (Photograph 6). Hawthorn is the dominant species with others including blackthorn, pedunculate oak (a few larger trees), dog-rose, spindle, goat willow, ash and elder. The ground flora is sparse due to pheasant-rearing activities (including a large release pen) and typically dominated by bramble, bracken, common nettle, false brome, dog's mercury and wood avens.

Photograph 5. Ditch on edge of woodland along the eastern boundary of the Site.	**Photograph 6.** Scrubby woodland near central part of the Site.

Adjacent habitats

5.3.7 Broadleaved woodland (with a few conifers) is the dominant adjacent habitat with further arable fields, areas of rough grassland, ponds, hedgerows, ditches and the ENRMF (to the east) also present. The distribution of adjacent habitats is also shown on Figure 2.

5.3.8 The woodland areas are generally ancient in character (especially Collyweston Great Wood) and managed as coppice-with-standards (Photograph 7). Typical species are ash, pedunculate oak, hazel, field maple, hawthorn, blackthorn, dog-rose, wych elm and goat willow. Occasional tree and shrub species include small-leaved lime *Tilia cordata*, wild service *Sorbus torminalis*, sycamore, Scot's pine *Pinus sylvestris*, wayfaring-tree, wild privet, dogwood and Midland hawthorn *Crataegus laevigata*. Typical ground flora species include dog's mercury, false brome, common nettle, tufted hair-grass, bramble, wood avens, wood-sedge, various ferns and bluebell *Hyacinthoides non-scripta*. Occasional species include spurge-laurel *Daphne laureola*, primrose *Primula vulgaris* and wood melick *Melica uniflora*.

5.3.9 Several strips of woodland to the west of the northern arable field are more plantation-like in nature and dominated by sycamore, common lime *Tilia x europaea*, hawthorn, blackthorn, wych elm, snowberry and elder.

5.3.10 Many ponds are present within adjacent wooded areas (especially to the west of the northern arable field) and all were dry at the time of the survey. Additional ponds include a complex of duck ponds to the north (Photograph 8), which were partly holding water and some ponds to the north of the ENRMF, which also held water and are known to be used by great crested newts and other amphibians.

Photograph 7. Coppice-with-standards woodland (Collyweston Great Wood) to east of the Site.	**Photograph 8.** Duck pond complex to north of the Site.

Protected and Notable Species

Amphibians

5.3.11 No amphibians were found during the survey but the desk study included many local records for great crested newt. No waterbodies were found within the Site and most of those present in adjacent habitats were dry at the time of survey. Most of these ponds are known to hold water during the spring and therefore have potential to support both breeding great crested newts and common toads *Bufo bufo*. There is generally good connecting habitat between these ponds and the Site. There may also be further ponds in adjacent habitats further from the Site. Within the Site, the field margins, internal hedgerow/ditch, boundary hedgerows/ditches and central wooded area provide habitat for amphibians.

Reptiles

5.3.12 No reptiles were found during the survey but the desk study revealed many records for the local area comprising adder *Vipera berus*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and slow worm *Anguis fragilis*. Suitable habitats are limited to the margins of the Site and the internal hedgerow/ditch. Ecological monitoring surveys of the area to the north of the ENRMF has shown that both common lizard and slow worm are relatively common in the area with occasional records of adder and grass snake.

Birds

5.3.13 Thirty-six bird species were recorded during the survey and of these, 28 were using the Site for feeding/hunting. These species included four S41 Species of Principal Importance (dunnock, marsh tit, house sparrow and yellowhammer), four Red List (Eaton *et al,* 2015) species (mistle

thrush, marsh tit, house sparrow and yellowhammer) and three species (red kite, fieldfare and redwing) on Schedule-1 of the WCA. All the above notable species, apart from house sparrow, redwing and fieldfare, have potential nesting habitat within the Site.

5.3.14 It is likely that a range of bird species, mainly associated with farmland and woodland, will nest within the Site, primarily in the wooded area and hedgerows with some (such as skylark *Alauda arvensis*) in the open fields. The wooded part of the Site may be suitable nesting habitat for red kite.

5.3.15 Additional notable bird species using adjacent habitats included two more S41 species (song thrush and starling), which are also both Red List species. Schedule-1 species that could potentially nest in adjacent habitats include red kite, hobby *Falco subbuteo,* crossbill *Loxia curvirostra* and little ringed plover *Charadrius dubius*.

5.3.16 The two fields within the Site are likely used by only a limited range of wintering species, primarily small passerines, pigeons, corvids and raptors for feeding/hunting. The enclosed nature of these fields makes them unlikely to attract wintering waders such as lapwing or golden plover. The adjacent fields, south of the ENRMF, are more open in nature and more likely to be used by these species.

5.3.17 The Site is clearly intensively managed for game shooting, with pheasants abundant throughout and red-legged partridges less so. A large pheasant-release pen is present within the wooded part of the Site.

Bats

5.3.18 There are no buildings within the Site but several large trees (mainly on the margins) have potential to support roosting bats due to the presence of cracks or holes. The arable fields of the Site are unlikely to provide significant feeding opportunities for bats but the wooded margins and the internal hedgerow/ditch can be expected to be used by foraging individuals.

Badgers

5.3.19 Many signs of badger activity (pathways, feeding signs and dung pits) were found within the Site but no setts were present, however, several setts were noted in the surrounding woodland, including some immediately adjacent to the Site boundary. It is likely further badger setts will be found in adjacent habitats with more survey work.

Dormice

5.3.20 The desk study revealed that dormice *Muscardinus avellanarius* are recorded to the west of the Site in Fineshade Wood. The wooded part of the Site plus the internal and boundary hedgerows have some potential to be used by dormice. Dormouse nest boxes erected in woodland to the north of the ENRMF have not been used to date.

Brown Hares

5.3.21 The desk study did not provide any recent records for brown hares in the area but two were noted during the survey (one using the southern arable field and another in an adjacent arable field). There is farmland beyond the Site boundaries to the west and east and whilst brown hare may make greater use of the site than has been recorded, it is a highly mobile species. Brown hares are therefore not considered an important feature of this site. Any animals that use the site are likely resilient to any predicted effects of the proposed scheme and are not taken forward to the impact assessment.

Invertebrates

5.3.22 No invertebrates were recorded during the survey, which is not surprising given the time of year. The two arable fields of the Site are unlikely to support many notable invertebrates but the wooded margins of the site may do so.

6 ASSESSMENT AND RECOMMENDATIONS

6.1 IMPORTANT FEATURES THAT COULD BE AFFECTED BY THE PROPOSED SCHEME

Statutory or non-statutory sites

6.1.1 It is considered highly unlikely that the proposed scheme would result in a significant effect on an internationally protected site, however, it could have a negative effect on Collyweston Great Wood and Easton Hornstocks NNR and SSSI that lies immediately northeast of the Site. Fineshade Woods LWS may also be affected by the scheme because part of the LWS is located immediately to the west and south of the Site. Both of the above sites have ancient woodland habitats and both could potentially be affected by dust, leachate, lights and disturbance (physical and noise). No other site with statutory or non-statutory protection for nature conservation is considered likely to be affected by the development.

Habitats and Species of Nature Conservation Interest

6.1.2 The important ecological features for this site (i.e. those that are both of high significance in a stated geographical context and with potential to be affected by the proposed works) are shown in Table 4. Plant communities are assessed both in terms of their intrinsic value and as habitat for those protected species whose habitat is also specifically protected, also for species of nature conservation concern that are particularly associated with them.

TABLE 4. SUMMARY TABLE OF IMPORTANT ECOLOGICAL FEATURES

ECOLOGICAL FEATURE	COMMENTS	POTENTIAL EFFECT
Protected Sites.	Collyweston Great Wood and Easton Hornstocks NNR and SSSI. Fineshade Woods LWS.	Direct effects to margins of woods plus effects of dust, leachate, lights and disturbance.
Hedgerows.	All native hedgerows qualify as S41 habitats in recognition of their value to wildlife. Possible Hedgerow Regulations.	Removal of two hedgerow sections (approximately 160m and 410m respectively), possibly more.
Trees.	Trees on site may provide roosting opportunities for bats and all provide nesting opportunities for breeding birds in season.	Direct/indirect impact on bat roosts. The effects of dust.
Great crested newts.	WCA S5, EPS, S41 Species of Principal Importance.	Killing and injury, loss of terrestrial habitat.
Reptiles.	WCA S5, S41 Species of Principal Importance.	Killing and injury, loss of habitat.
Bats.	WCA S5, EPS, S41 Species of Principal Importance.	Killing and injury, loss of foraging habitat and roost sites.
Badgers.	PBA.	Killing, injury, damage/disturbance to setts, loss of foraging habitat.
Dormice.	WCA S5, EPS, S41 Species of Principal Importance.	Killing and injury, loss of breeding and foraging habitat.
Birds.	Listed on WCA. S41 Species of Principal Importance. Red List species.	Damage/disturbance to active nests, loss of breeding/feeding/wintering habitat.
Invertebrates.	Potential for S41 Species of Principal Importance and Red List species.	Loss of breeding/feeding habitats.

6.2 RECOMMENDATIONS FOR FURTHER SURVEY

6.2.1 The following programme of further surveys will be required to inform the ecological impact assessment. These requirements, with the optimal survey period, are given in Table 5.

- Undertake botanical surveys in spring and summer to accurately characterise the habitats present, evaluate the floristic diversity and conservation interest on the site and inform the restoration plan.
- Assess hedgerows for their importance under the Hedgerow Regulations, 1997.
- Sample suitable and accessible waterbodies for a suite of amphibian eDNA surveys and follow-up with aquatic surveys as necessary to determine the species present and the likely populations.
- Determine the presence of any bat roosts, the species, number and status of bats present. Undertake bat activity surveys to determine species assemblage and identify key foraging areas and commuting routes.
- Carry out a reptile survey of key habitats using a combination of artificial cover objects (tins) and direct observation.

- Undertake a detailed badger survey (including bait-marking) and monitor activity.
- Undertake a presence/absence survey for dormice in hedgerows and adjacent woodland.
- Undertake a breeding bird survey using the Common Bird Census (CBC) method.
- Undertake a wintering bird survey using mixture of transects and viewpoints.
- Carry out an invertebrate assessment of the site with follow-up surveys of key areas as necessary.
- Carry out tree survey to BS 5837: Trees in Relation to Design, Demolition, & Construction (Stage 1: Feasibility & Planning).

6.2.2 Unless they are recorded during the suite of surveys above or unless further information comes to light, the following protected species/groups will be scoped out of the assessment at this stage:

- Water voles and otters - not recorded in previous surveys, no suitable habitats on site.

6.2.3 Each survey must be undertaken by trained and experienced ecologists holding relevant Natural England survey licences and in the correct season for the species/group under consideration. Surveys must follow published guidelines, adopt recognised methodologies and adhere to best practice. An assessment of any effects on the important ecological features associated with the site should preferably be undertaken in accordance with the CIEEM Guidelines for Ecological Impact Assessment (CIEEM, 2018).

TABLE 5. FURTHER SURVEYS AND OPTIMAL TIMINGS

SURVEY TYPE	OPTIMAL TIMINGS
Botanical survey (including hedgerow assessments).	May to July.
Amphibian survey of pond(s) including eDNA sampling.	March to June.
Bat surveys (tree assessment, transects and static detectors).	April to September.
Reptile survey.	April to September.
Badger activity monitoring (including bait-marking).	February to September.
Dormouse presence/absence survey.	March to September.
Breeding bird survey.	Late March to early July.
Wintering bird survey.	October to early March.
Invertebrate scoping assessment.	April to May.
Tree survey (BS 5837).	April to September.

6.3 OPPORTUNITIES TO AVOID, MINIMISE OR MITIGATE ADVERSE EFFECTS

6.3.1 Table 6 provides some preliminary suggestions as to how potential impacts can be avoided, minimised or mitigated. The extent to which this will be necessary will be determined by the results of the further surveys, the scheme design and timings.

TABLE 6. SUMMARY TABLE OF POTENTIAL AVOIDANCE/MITIGATION MEASURES

FEATURE OF INTEREST	SUGGESTED MEASURES TO AVOID, MINIMISE OR MITIGATE
Protected Sites.	Create a buffer zone between the Site and the protected woodlands. Use suitable procedures to minimise dust, leachate and disturbance.
Hedgerows.	Minimise the length to be removed where possible and plant-up gaps elsewhere with locally-native species. Plant new hedgerows as part of restoration scheme.
Trees.	Retain trees where possible and implement root protection zones. If necessary, remove trees outside the breeding bird season and after checking for use by bats. Ensure habitat restoration scheme has a large number of locally-native planted trees present.
Great crested newts.	Determine presence/absence and mitigate under EPSL where necessary.
Reptiles.	Determine presence/absence and remove from development footprint in advance of work where necessary. Create high quality reptile habitat within the wider site.
Bats.	Determine presence/absence in trees and mitigate under EPSL where necessary. Minimise light spill on boundary features. Create or gap-up hedgerows and plant trees. Provide bat boxes in retained marginal trees.
Badgers.	Monitor badger activity. Carry out work under a licence where necessary. Create high quality foraging habitats.
Dormice.	Determine presence/absence and remove from development footprint in advance of work where necessary. Monitor suitable new habitats created.
Birds.	Undertake vegetation clearance works outside nesting season. Create high quality bird nesting/foraging habitat.
Invertebrates.	As part of restoration scheme create a mosaic of new habitats suitable for a wide range of invertebrates but particularly woodland species.

6.4 CONCLUSION

6.4.1 Based on the limited amount of work undertaken to date, it is considered feasible that any adverse impact arising as a result so the proposed scheme can be avoided, minimised or mitigated and that any residual effects can be addressed so that the scheme meets with published nature conservation objectives, including providing high quality biodiversity gain.

7 REFERENCES

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KEY

Survey area

SITE NAME:
ENRMF Western Extension.

DRAWING TITLE:
Site location.

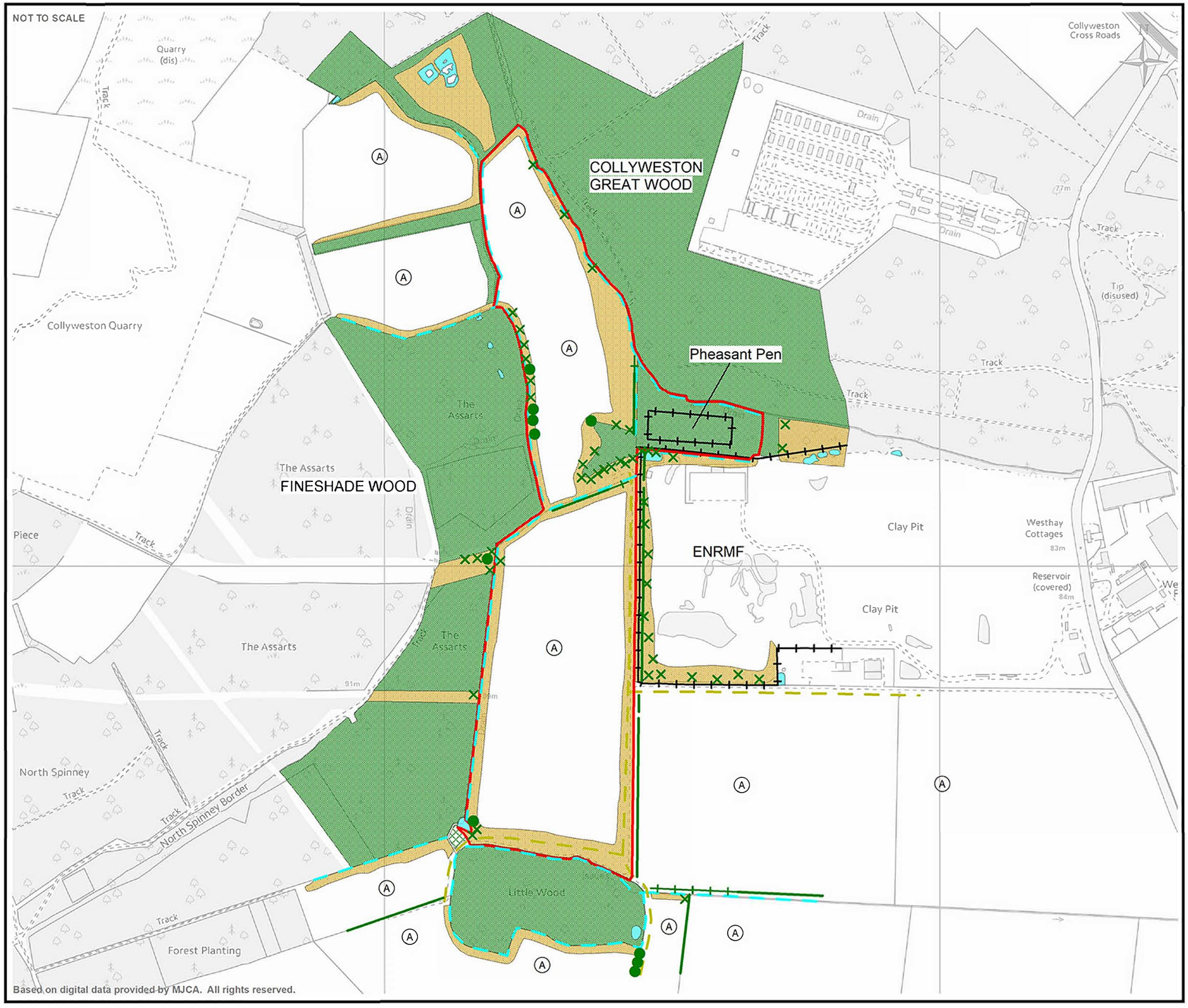
Figure 1

Dwg no.: 118-L212-001 Date: Dec 2018

(ecological services) limited

KEY

- Isolated tree
- Scattered scrub
- Arable
- Survey area
- Hedgerow
- Hedgerow with trees
- Dry ditch
- Fence
- Track
- Rough grassland
- Waterbody
- Broadleaved woodland
- Dense scrub



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SITE NAME:
ENRMF Western Extension.

DRAWING TITLE:
Habitat map.

Figure 2

Dwg no.: 118-212-002 Date: Dec 2018

esl (ecological services) limited

APPENDIX 1

SPECIES RECORDED DURING SITE SURVEY, 30 OCTOBER 2018

SPECIES RECORDED AT ENRMF PROPOSED WESTERN EXTENSION AREA (including boundaries) on 30/10/2018

ENGLISH NAME	SCIENTIFIC NAME	DAFOR
PLANTS		
annual meadow-grass	*Poa annua*	O
ash	*Fraxinus excelsior*	O
barren brome	*Anisantha sterilis*	F
black bryony	*Tamus communis*	O
blackthorn	*Prunus spinosa*	O
bracken	*Pteridium aquilinum*	O
bramble	*Rubus fruticosus*	F
broad-leaved dock	*Rumex obtusifolius*	O
buckthorn	*Rhamnus cathartica*	R
cleavers	*Galium aparine*	F
clustered dock	*Rumex conglomeratus*	O
cock's-foot	*Dactylis glomerata*	A
common bent	*Agrostis capillaris*	O
common bird's-foot-trefoil	*Lotus corniculatus*	O
common field-speedwell	*Veronica persica*	O
common knapweed	*Centaurea nigra*	O
common mouse-ear	*Cerastium fontanum*	O
common nettle	*Urtica dioica*	A
common vetch	*Vicia sativa*	O
cow parsley	*Anthriscus sylvestris*	O
crab apple	*Malus sylvestris*	R
creeping bent	*Agrostis stolonifera*	F
creeping buttercup	*Ranunculus repens*	F
creeping thistle	*Cirsium arvense*	O
curled dock	*Rumex crispus*	R
cut-leaved crane’s-bill	*Geranium dissectum*	O
daisy	*Bellis perennis*	O
dandelion	*Taraxacum* sp	F
dog-rose	*Rosa canina*	O
dog's mercury	*Mercurialis perennis*	O
dogwood	*Cornus sanguinea*	R
dove's-foot crane's-bill	*Geranium molle*	O
elder	*Sambucus nigra*	R
false brome	*Brachypodium sylvaticum*	A
false oat-grass	*Arrhenatherum elatius*	F
fat-hen	*Chenopodium album*	O
field forget-me-not	*Myosotis arvensis*	O
field horsetail	*Equisetum arvense*	O
field maple	*Acer campestre*	R
field penny-cress	*Thlaspi arvense*	R
field-rose	*Rosa arvensis*	R
garlic mustard	*Alliaria petiolata*	O
germander speedwell	*Veronica chamaedrys*	O
glaucous sedge	*Carex flacca*	O
goat willow	*Salix caprea*	O
gorse	*Ulex europaeus*	R
great willowherb	*Epilobium hirsutum*	O
greater plantain	*Plantago major*	O
grey willow	*Salix cinerea*	O
ground-ivy	*Glechoma hederacea*	F
groundsel	*Senecio vulgaris*	F
hairy St John’s-wort	*Hypericum hirsutum*	O
hard rush	*Juncus inflexus*	O

ENGLISH NAME	SCIENTIFIC NAME	DAFOR
hawthorn	*Crataegus monogyna*	F
hazel	*Corylus avellana*	O
hedge bedstraw	*Galium album*	R
hedge woundwort	*Stachys sylvatica*	R
herb-Robert	*Geranium robertianum*	R
hoary ragwort	*Senecio erucifolius*	O
hogweed	*Heracleum sphondylium*	F
ivy	*Hedera helix*	O
lesser burdock	*Arctium minus*	R
lesser trefoil	*Trifolium dubium*	O
male-fern	*Dryopteris filix-mas*	R
many-seeded goosefoot	*Chenopodium polyspermum*	O
meadow buttercup	*Ranunculus acris*	O
meadow foxtail	*Alopecurus pratensis*	R
nipplewort	*Lapsana communis*	R
pedunculate oak	*Quercus robur*	R
perennial rye-grass	*Lolium perenne*	F
pineappleweed	*Matricaria discoidea*	O
prickly sow-thistle	*Sonchus asper*	O
red clover	*Trifolium pratense*	O
red dead-nettle	*Lamium purpureum*	R
red fescue	*Festuca rubra*	A
redshank	*Persicaria maculosa*	R
ribwort plantain	*Plantago lanceolata*	A
rough meadow-grass	*Poa trivialis*	O
scarlet pimpernel	*Anagallis arvensis*	O
shepherd's-purse	*Capsella bursa-pastoris*	O
silver birch	*Potentilla anserina*	R
smooth meadow-grass	*Poa pratensis*	F
smooth tare	*Vicia tetrasperma*	R
snowberry	*Symphoricarpos albus*	R
soft-brome	*Bromus hordeaceus*	F
spiked sedge	*Carex spicata*	R
spindle	*Euonymus europaeus*	R
sycamore	*Acer pseudoplatanus*	R
tall fescue	*Schedonorus arundinaceus*	O
tufted hair-grass	*Deschampsia cespitosa*	O
tufted vetch	*Vicia cracca*	R
wayfaring-tree	*Viburnum lantana*	R
white bryony	*Bryonia dioica*	R
white clover	*Trifolium repens*	F
white willow	*Salix alba*	R
wild angelica	*Angelica sylvestris*	R
wild clematis	*Clematis vita-alba*	O
wild parsnip	*Pastinaca sativa*	O
wild privet	*Ligustrum vulgare*	O
wood avens	*Geum urbanum*	O
wood dock	*Rumex sanguineus*	R
wood small-reed	*Calamagrostis epigejos*	O
wood-sedge	*Carex sylvatica*	O
wych elm	*Ulmus glabra*	O
Yorkshire-fog	*Holcus lanatus*	A

KEY TO DAFOR

(An estimate of plant relative abundance at a site)

D Dominant

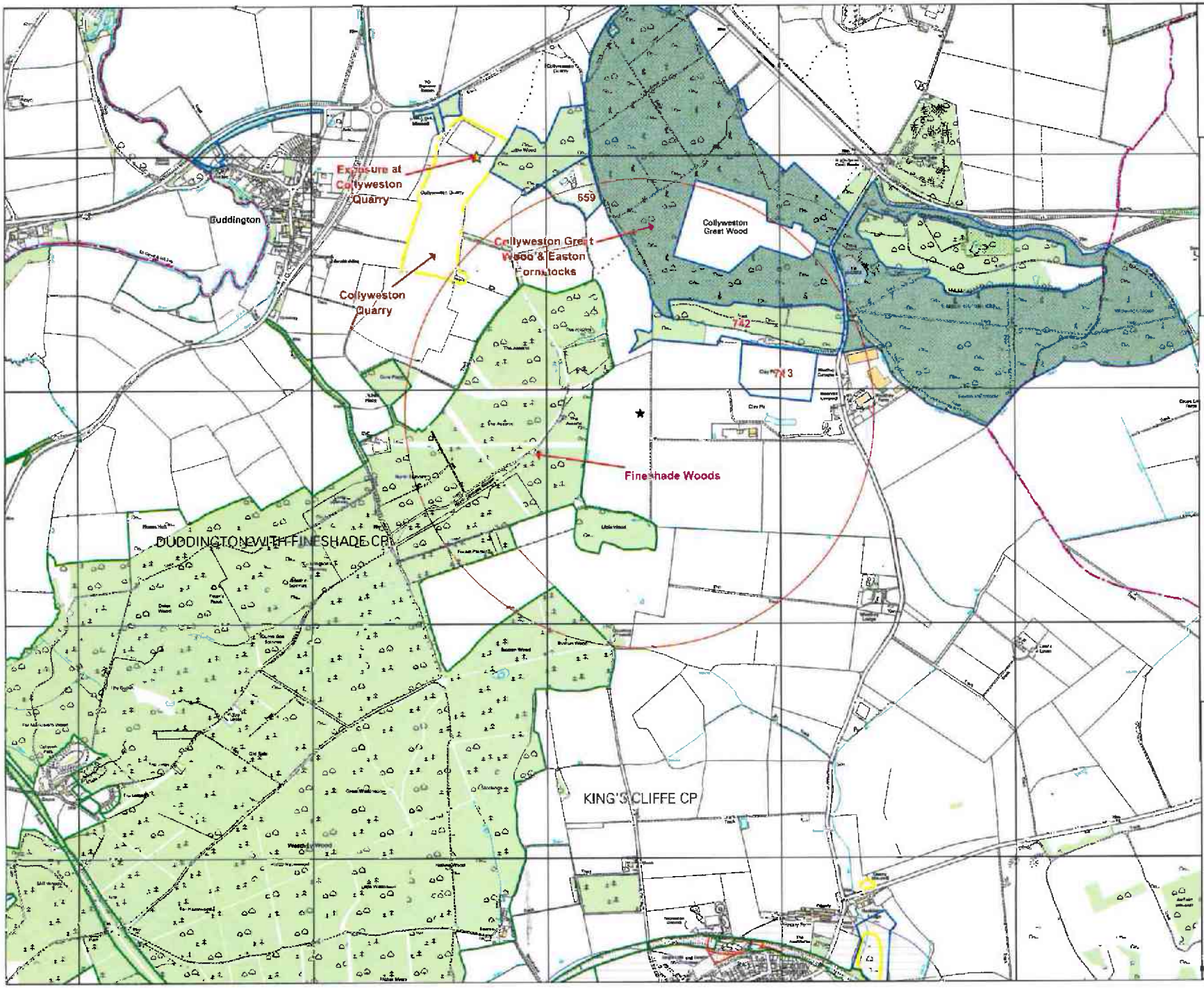
A Abundant

F	Frequent
O	Occasional
R	Rare

ENGLISH NAME	SCIENTIFIC NAME	SITE	ADJACENT
BIRDS			
mallard	*Anas platyrhynchos*		✓
red-legged partridge	*Alectoris rufa*	✓	
pheasant	*Phasianus colchicus*	✓	✓
red kite	*Milvus milvus*	✓	✓
buzzard	*Buteo buteo*	✓	✓
kestrel	*Falco tinnunculus*	✓	✓
stock dove	*Columba oenas*	✓	✓
woodpigeon	*Columba palumbus*	✓	✓
pied wagtail	*Motacilla alba*		✓
wren	*Troglodytes troglodytes*	✓	✓
dunnock	*Prunella modularis*	✓	✓
robin	*Erithacus rubecula*	✓	✓
blackbird	*Turdus merula*	✓	✓
fieldfare	*Turdus pilaris*	✓	✓
song thrush	*Turdus philomelos*		✓
redwing	*Turdus iliacus*	✓	✓
mistle thrush	*Turdus viscivorus*	✓	✓
goldcrest	*Regulus regulus*	✓	✓
long-tailed tit	*Aegithalos caudatus*	✓	✓
blue tit	*Cyanistes caeruleus*	✓	✓
great tit	*Parus major*	✓	✓
coal tit	*Periparus ater*	✓	✓
marsh tit	*Poecile palustris*	✓	✓
nuthatch	*Sitta europaea*		✓
treecreeper	*Certhia familiaris*	✓	✓
jay	*Garrulus glandarius*	✓	✓
magpie	*Pica pica*	✓	✓
jackdaw	*Corvus monedula*	✓	✓
rook	*Corvus frugilegus*	✓	✓
starling	*Sturnus vulgaris*		✓
house sparrow	*Passer domesticus*	✓	
chaffinch	*Fringilla coelebs*	✓	✓
goldfinch	*Carduelis carduelis*		✓
siskin	*Carduelis spinus*		✓
yellowhammer	*Emberiza citrinella*	✓	✓
MAMMALS			
rabbit	*Oryctolagus cuniculus*	✓	✓
brown hare	*Lepus europaeus*	✓	✓
grey squirrel	*Sciurus carolinensis*	✓	✓
fox	*Vulpes vulpes*		✓
badger	*Meles meles*	✓	✓
fallow deer	*Dama dama*		✓
muntjac deer	*Muntiacus reevesi*		✓

APPENDIX 2

LOCATIONS OF NEARBY DESIGNATED SITES



NBRC
Northamptonshire Biodiversity Records Centre

Area around Land north of Kings Cliffe (1km search area)

- Local Geological Site
- Local Geological Site
- County Boundary
- Site of Special Scientific Interest
- Pocket Park
- Nature Improvement Area
- Local Wildlife Site
- Potential Wildlife Site
- National Nature Reserve

N

0.5km

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