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DOVE'S NEST FARM TEMPORARY DRILL SITE

ECOLOGICAL SURVEY & ASSESSMENT

PCAJ127/DNF/V1

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1.0 INTRODUCTION

Paul Chester & Associates Ltd. (PCA) was commissioned by York Potash Ltd. to undertake an extended Phase 1 Habitat Survey and to compile an Ecological Impact Assessment (EclA) on land to the north-west of Dove's Nest Farm (NGR NZ 893 054). The site will be subject to a planning application for a temporary drilling rig and would comprise of a cleared compound extending over an area of approximately 80m x 80m. All activities associated with the drilling will be confined to the cleared compound. Access to the drill site would be via a temporary access track established off the B1416.

A site location plan is provided as Figure 1. The site currently comprises of arable farmland, representing approximately the north-western quarter of a larger arable field. The site is bordered to the north by a mature field boundary, to the west by a woodland plantation and to the south and east by arable farmland. The access track would be off the B1416 to the north of the site within an improved pasture field, crossing the northern field boundary to access the drill site. A series of photographs are included to illustrate the more detailed baseline description of the site.

2.0 ECOLOGICAL SURVEY METHODOLOGY

2.1 Introduction

The final scope of the ecological survey was defined on the basis of known and potential ecological interest in the local area. This was defined on the basis of desk-based consultation and search as well as professional knowledge of the local area. The survey was completed on 9th May 2012.

2.2 Personnel

The field survey and EclA report was completed by Mr Paul Chester, Managing Director of PCA Ltd. Mr Chester is an ecologist with some twenty years professional experience. He has been a member of the Institute of Ecology and Environmental Management since 1994. He has extensive experience in the ecological survey and assessment of sites such as this and of the survey and assessment of a comprehensive range of habitats and species.

2.3 Ecological Survey Methodology

The ecological survey broadly followed the standard extended phase 1 methodology. This methodology involves surveying the habitats that are present as well as the recording of field signs/evidence indicating the presence/potential presence of species that could constitute a material consideration in planning terms. The final scope of the ecological survey was defined on the basis of known and potential ecological interest in the local area and giving due consideration to potential ecological impacts associated with the temporary drill site.

2.4 Survey Constraints

A walkover survey such as this provides only a "snapshot" of the conditions prevailing at the time of survey. Early May is, however, within the main survey period for the majority of species/species-groups. As such, it is considered that the survey results are representative of flora and fauna of the site and that additional survey effort would not materially alter the conclusions of this report.

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3.0 APPROACH TO THE ECOLOGICAL IMPACT ASSESSMENT

3.1 Introduction

Following on from the establishment of the baseline ecological conditions, the ecological impacts are identified and assessed in line with guidance published by the Institute of Ecology and Environmental Management (IEEM). This involves an initial process of evaluation, followed by a process of impact identification and assessment. The methodology and approach that has been followed in this assessment is described further below.

3.2 Evaluation

3.2.1 Introduction

Ecological value is established on the basis of the importance of the identified habitats and species. Importance relates to the overall importance of a species or habitat and forms the basis for establishing the value of a discrete population of a particular species or discrete habitat. There are many factors which contribute to such value including extent, naturalness, rarity, fragility and diversity. These along with other established criteria have been applied.

An important element of the evaluation process is that of establishing the value of a particular species or habitat within set geographical parameters. Those that have been used in the assessment are typically as follows:

- International (Europe)
- National (United Kingdom)
- Regional (North-east England)
- County (North Yorkshire)
- District/Unitary Authority area (North York Moors National Park)
- Local (Dove's Nest Farm and its surrounds)
- Site i.e. within zone of influence only (typically the planning application site although where relevant, a larger area)



In terms of attributing value, whilst clearly the presence of protected sites or species is of fundamental importance it is also important to identify those habitats and species which are of significance in the local or site-specific context. The identification of such features and species enables best practice to be followed in the detailed design of an individual proposal.

The relative sensitivity of an individual ecological receptor has also been considered and is based upon a number of factors including the extent of a particular habitat or the size of population of an individual species. Other factors include the fragility of the habitat or species both in terms of its susceptibility to disturbance and its ability to recover following such disturbance.

3.3 Identification and Assessment of Ecological Impacts

Following on from the establishment of the baseline ecological conditions and evaluation, the ecological impacts are considered in line with guidance published by the Institute of Ecology and Environmental Management (IEEM). These include consideration of the following parameters:

- positive or negative
- magnitude

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- extent
- duration
- reversibility
- timing and frequency

Whether a potential impact is significant is determined by quantifying the magnitude of effect of the identified impact on each of the identified ecological receptors. Large scale effects on receptors of high or very high sensitivity and value are likely to represent a significant impact that may be unacceptable in nature conservation terms. Equally, small-scale effects on receptors of low or very low degrees of sensitivity are likely to be below significance thresholds and thereby not a significant constraint to the proposed development.

3.3.1 Defining Significance

Establishing the significance of an identified ecological impact is based upon the consideration of the impact alongside the value of the impacted habitat, species or species-group. Whilst this is not necessarily straightforward, it is summarised in simple terms in the table below:

Value/Importance	Magnitude		
	Substantial	Moderate	Minor
International	Very High	High	Moderate
National	Very High	High	Moderate
Regional	Very High/High	High/Moderate	Moderate/Low
County	High	Moderate	Low
District	High	Moderate	Low
Local	High/Moderate	Low	Very Low

The lowest category of value/importance used in the assessment i.e. "site" has been deliberately excluded from the table. This is because these are impacts which are best treated on a site-specific basis, particularly when considering requirements for mitigation.

3.3.2 Mitigation Requirements

The establishment of mitigation requirements is based upon the consideration of the established ecological value and magnitude of the identified impact also taking into consideration the duration of the impact where relevant. Given the complexity of ecological processes, together with relevant legislation and policy guidance, this is not always straightforward. Clearly, adverse impacts on statutory designated sites and species would always require appropriate mitigation. With the advent of other legislation, for example, the Natural Environment and Rural Communities Act 2006, requirements have been extended beyond legally protected species and encompass biodiversity as a whole. Key documents including UK BAP, local BAP and unitary authority policy in relation to species and habitats therefore also need to be fully considered when defining mitigation requirements. It is also important to consider those impacts which are of significance only in the site context and to seek to reduce these wherever possible. Such site-specific measures strictly fall outside the definition of mitigation but are, nevertheless, something which should routinely be sought as a matter of best practice wherever possible.

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3.3.3 Residual Impact Assessment

Following through the ecological impact assessment process, the final element of the process is the re-assessment of the identified significant ecological impacts with any proposed mitigation in place.

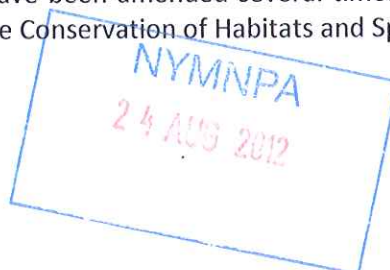
4.0 LEGISLATIVE & POLICY CONSIDERATIONS

4.1 Legislation

The Wildlife and Countryside Act (1981, as amended) provides protection for Britain's flora and fauna. Particular protection is afforded to certain species listed in schedules to the Act although the degree and nature of the protection varies. Schedule 1 of the Wildlife and Countryside Act (Part 4) lists birds which are afforded special protection. This protection is greater than for other birds and includes it being an offence to disturb a bird whilst it is building a nest or is in, on, or near a nest containing eggs or young. It is also an offence to disturb the dependent young of a Schedule 1 species. Schedule 5 lists animals which are afforded special protection. Relevant to development plans, this schedule makes it an offence to damage, destroy or obstruct access to any structure or place which any Schedule 5 animal inhabits. It is also an offence to disturb any such animal while it is occupying a structure or place which it uses for that purpose. For certain species, different levels of protection are afforded. Schedule 8 lists species of plants which are afforded special protection.

Other national legislation includes the Countryside and Rights of Way Act 2000 (CROW Act) which underpins the Government's commitment to the long term conservation of biodiversity in accordance with the Convention on Biological Diversity. More recently, the Natural Environment and Rural Communities Act 2006 was implemented primarily to implement key aspects of the Government's Rural Strategy published in July 2004. Specific to biodiversity conservation, Sections 40, 41 and 42 replace Section 74 of the CROW Act. Section 40 extends to all public authorities the existing Section 74 duty to have regard to biodiversity as far is consistent with the proper exercise of their functions. Section 41 places a duty on the Secretary of State to publish, review and revise lists of living organisms and types of habitat in England that are of principal importance for the purpose of conserving English biodiversity. At the national level, the UK Biodiversity Action Plan (BAP) sets out the broad strategy and targets for conserving and enhancing wild species and habitats over the next twenty years. The UK plan together with the individual action plans therefore provides the framework for the effective delivery of biodiversity conservation at the national level and provides the UK commitment to the Biodiversity Convention. The effective delivery of national priorities as well as the conservation of species and habitats of value at the local level is achieved through the implementation of Local Biodiversity Action Plans (LBAPs).

In relation to European legislation, the EC has adopted two Directives in relation to wildlife and nature conservation. In relation to birds, Council Directive 79/409/EEC on the conservation of wild birds provides a framework for the conservation and management of wild birds in Europe. Other habitats and species are protected through Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora which requires Member States to schedule important wildlife sites through the European Community as Special Areas of Conservation (SACs) and to give protection to habitats and species listed in the Directive as being threatened or of Community interest. The Habitats Directive was transposed into UK law by the 'Conservation (Natural Habitats, &c.) Regulations 1994'. The Regulations have been amended several times since their introduction and were recently consolidated through the Conservation of Habitats and Species Regulations 2010.



4.2 Policy

4.2.1 National Policy

In late March 2012, the Government published its final draft version of the National Planning Policy Framework (NPPF), which sets out the Government's planning policies for England and how they should be applied in relation to biodiversity and other matters. This replaced the guidance previously provided in Planning Policy Statement 9 – Biodiversity and Geological Conservation. In relation to associated guidance, ODPM Circular 06/2005: "Biodiversity and Geological Conservation - Statutory Obligations and their Impact within the Planning System (Circular 06/05)", remains an active document, although it is now to be used in conjunction with the NPPF rather than PPS9. In the longer term, it is likely that new guidance will be prepared to underpin the NPPF as it relates to biodiversity. No timetable has, however, been set for this at present.

4.2.2 North York Moors National Park Authority Policy

The Local Development Framework (LDF) for the National Park consists of several different documents to guide future development whilst ensuring that its special qualities are conserved and enhanced. Of particular relevance to biodiversity is Core Policy C – Natural Environment, Biodiversity and Geodiversity of the Core Strategy and Development Policies document. This policy states that:

"The quality and diversity of the natural environment of the North York Moors National Park will be conserved and enhanced. Conditions for biodiversity will be maintained and improved and important geodiversity assets will be protected. Protected sites and species will be afforded the highest level of protection with priority also given to local aims and targets for the natural environment.

All developments, projects and activities will be expected to:

- 1. Provide an appropriate level of protection to legally protected sites and species.*
- 2. Maintain, and where appropriate enhance, conditions for priority habitats and species identified in the North York Moors Local Biodiversity Action Plan.*
- 3. Maintain and where appropriate enhance recognised geodiversity assets.*
- 4. Maintain and where appropriate enhance other sites, features, species or networks of ecological or geological interest and provide for the appropriate management of these.*
- 5. Maximise opportunities for enhancement of ecological or geological assets, particularly in line with the North York Moors Local Biodiversity Action Plan, Tees Valley and North East Yorkshire Geodiversity Action Plans and the regional Habitat Enhancement Areas.*
- 6. Mitigate against any necessary impacts through appropriate habitat creation, restoration or enhancement on site or elsewhere.*

4.2.3 Other – Convention on Biological Diversity

The Convention on Biological Diversity was adopted at the Earth Summit in Rio de Janeiro, Brazil in June 1992, and came into force in December 1993. In relation to biodiversity conservation, the Convention called for the development and enforcement of national biodiversity strategies and action plans to identify, conserve and protect existing biological diversity and to enhance it wherever possible. In response to this, the UK Biodiversity Action Plan (BAP) published in 1994 sets out the broad strategy and targets for conserving and enhancing wild species and habitats over a twenty year period. A further report published in December 1995 provides detailed proposals for a large number of species and habitats which require urgent conservation action. The effective delivery of national priorities as well as the conservation of species and habitats of value at the local level is

achieved through the implementation of Local Biodiversity Action Plans (LBAPs). The relevant LBAP for the application site is North York Moors National Park Authority Local Biodiversity Action Plan 2008-2012. This document sets out local priorities for biodiversity. Of particular relevance to the planning application are local priority habitats and species. In relation to species, whilst these are often associated with species which are afforded protection under relevant European and UK legislation, this is not necessarily the case. The local priority habitat types likewise include a tier of habitats which may not necessarily be protected by any higher level designation.

5.0 SURVEY RESULTS

5.1 Desk Study

As part of the EclA a detailed desk-based study has been undertaken. This has involved the consideration of a number of published documents and other information relevant to the study area. Key sources of information reviewed as part of the desk study include, in particular:

- National Biodiversity Network (NBN) Gateway.
- Various national and regional distribution atlases/reports in relation to plants, birds, etc.
- North York Moors National Park Local Biodiversity Action Plan.

In addition, all relevant ecological data within a zone extending to approximately 2km from the application site has been obtained from the North East Yorkshire Ecological Data Centre (NEYEDC).

In terms of the results of the desk study and data request, no legally protected species records were identified for the site or its immediate surrounds. In the wider local area, the NEYEDC provided records of a number of legally protected or rare/noteworthy species recorded within approximately 2km of the application site. These were:

- Adder *Vipera berus* (Various records, the closest of which is Haxby Plantation, NZ 898 051)
- Badger *Meles meles* (Various records, the closest of which is approximately 500m south of the proposed drill site)
- Birds (several UK/LBAP and British Trust for Ornithology Red List species)
- Common Frog *Rana temporaria* (NZ 80 and NZ 90)
- Common Toad *Bufo bufo* (NZ 80 and NZ 90)
- Brown Hare *Lepus europaeus* (Various records, for example, NZ 89 04)
- Palmate Newt *Lissotriton helveticus* (Several locations, the closest of which is Haxby Plantation, NZ 900 048)
- Slow-worm *Anguis fragilis* (Low Rigg Farm, NZ 915 052)
- Water Vole *Arvicola terrestris* (Buskey Beck, Sneaton, NZ 88 07)

5.2 Statutory and Non-Statutory Sites of Nature Conservation Interest

5.2.1 Statutory Designations

The study area and its immediate surrounds are not subject to any statutory nature conservation designation. In the wider area, the closest statutory site is the North York Moors Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA). This is an extensive statutory site covering much of the moorland within the North York Moors National Park. The nearest section of the designated site to the application site is associated with Ugglebarnby Moor approximately 100m to the west of the site to the west of the B1416.

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In terms of the basis for these statutory designations, the site qualifies as a SAC on the basis of providing examples of the following habitat types listed in Annex 1 of Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora.

- Northern Atlantic wet heaths with Cross-leaved Heath *Erica tetralix* for which this is considered to be one of the best areas in the United Kingdom.
- European dry heaths for which this is considered to be one of the best areas in the United Kingdom.
- Blanket bogs for which the area is considered to support a significant presence (Blanket Bog is an Annex 1 priority habitat type when in its active form).

The SAC covers an extensive area extending over 44,000ha of the North York Moors National Park. The conservation objectives for the SAC are to maintain the above habitat types in a favourable condition. Maintain implies restoration where the habitat type is not in a favourable condition. The boundary is essentially that which is also adopted in relation to the SPA and SSSI designations considered further below.

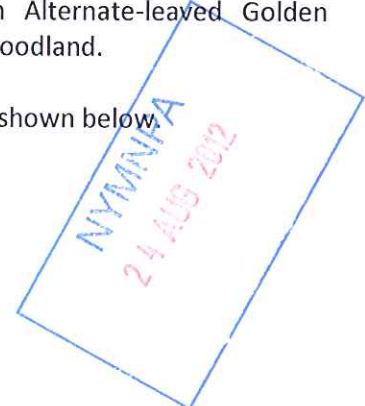
In relation to the SPA designation, this site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:

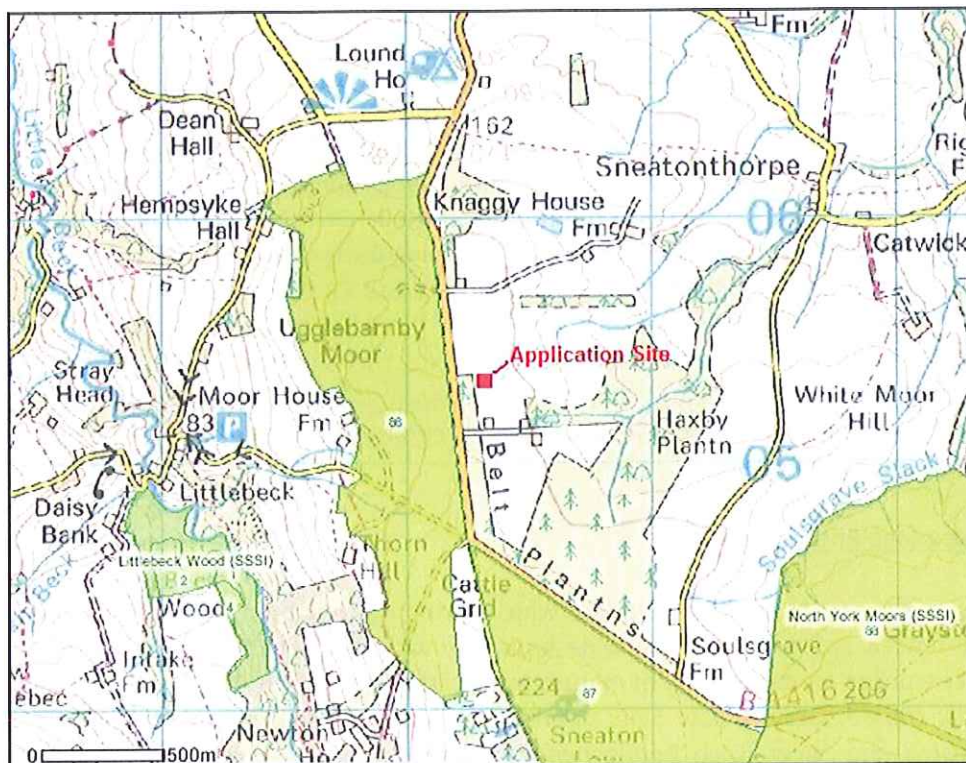
- Golden Plover *Pluvialis apricaria*, 526 pairs representing at least 2.3% of the breeding population in Great Britain.
- Merlin *Falco columbarius*, 40 pairs representing at least 3.1% of the breeding population in Great Britain.

With the same boundary as the European sites, the North York Moors SSSI contains the largest continuous tract of heather moorland in England. The site is of national importance for its mire and heather moorland vegetation communities and of international importance for its breeding bird populations. The site consists of the four main moorland blocks with five smaller outlying areas.

In the wider area, Littlebeck Wood SSSI is located approximately 1.1km to the south-west of the application site. Little Beck Wood is situated on a steep north-east facing hillside to the west of Little Beck and is a good example of mixed deciduous woodland of ancient origin. The woodland canopy includes species such as Ash *Fraxinus excelsior*, Rowan *Sorbus aucuparia*, Sessile Oak *Quercus robur* and Wych Elm *Ulmus glabra*, with Blackthorn *Prunus spinosa*, Hawthorn *Crataegus monogyna*, Hazel *Corylus avellana* and Holly *Ilex aquifolium* in the shrub layer. The well-developed ground flora includes characteristic woodland species such as Bluebell *Hyacinthoides non-scripta*, Dog's-mercury *Mercurialis perennis* and Ramsons *Allium ursinum*. The uncommon Alternate-leaved Golden Saxifrage *Chrysosplenium alternifolium* is present in wetter parts of the woodland.

The boundary of these statutory sites in relation to the application site is shown below.





North York Moors SSSI, SAC & SPA and Littlebeck Wood SSSI (reproduced from Natural England, 'Nature on the Map')

5.2.2 Non Statutory Designations

The study area and its immediate surrounds are not subject to any non-statutory nature conservation designation. In the wider local area, Little Beck Wood is a Yorkshire Wildlife Trust Nature Reserve. This refers to the section of woodland to the east of Little Beck i.e. adjacent to the SSSI. It is approximately 800m south-west of the application site. In terms of other non-statutory designations, Great and Little Beck Woods are included on the Ancient Woodland Inventory as examples of ancient semi-natural woodland. The ancient woodland is approximately 800m south-west of the application site at its closest point. The woodland associated with Sneaton Thorpe Beck (NZ 903 057), approximately 1km to the east is also included on the Ancient Woodland Inventory as an example of ancient semi-natural woodland.

5.3 Plants/Habitats

5.3.1 Survey Methodology

The botanical survey involved a Phase 1 Habitat Survey together with more detailed description of individual areas, where relevant. A botanical species list is provided as Appendix 1. Likewise, a series of illustrative photographs are provided in Appendix 3.



5.3.2 Survey Results

General Description

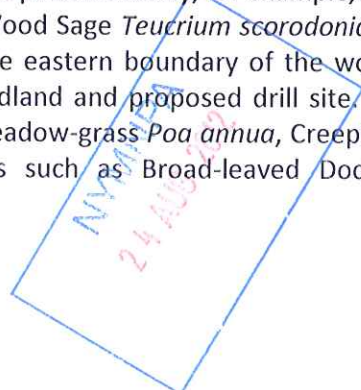
With the exception of the temporary access to the site, the entire application site is within an intensively farmed arable field (see Photograph 1). This supports very limited natural vegetation which is essentially limited to occasional arable weeds along the field margin. Species present in these marginal habitats include Broad-leaved Dock *Rumex obtusifolius*, Cleavers *Galium aparine*, Common Chickweed *Stellaria media*, Common Mouse-ear *Cerastium fontanum*, Common Nettle *Urtica dioica*, Creeping Bent *Agrostis stolonifera*, Creeping Buttercup *Ranunculus repens*, Daisy *Bellis perennis*, Groundsel *Senecio vulgaris* and Wavy Bitter-cress *Cardamine flexuosa*. In relation to the temporary access, with the exception of the verge of the B1416 and the crossing of the boundary which borders the proposed drill site on its northern side, this is entirely within an improved pasture field (see Photograph 2). The field is dominated by Perennial Rye-grass *Lolium perenne* with rarely occurring forbs which include Common Mouse-ear, Creeping Buttercup, Daisy, Dandelion *Taraxacum agg.* and Greater Plantain *Plantago major*.

Target Note 1 (see Photograph 3)

This refers to the northern field boundary which forms the northern boundary of the application site. It is a fenced approximately 8m wide boundary with defunct ditch on its northern side. The boundary comprises predominantly of mature trees with species such as Beech *Fagus sylvatica*, Goat Willow *Salix caprea*, Grey Willow *Salix cinerea ssp. cinerea*, Rowan *Sorbus aucuparia*, Scots Pine *Pinus sylvestris* and Silver Birch *Betula pendula*. Lower shrubs are rare and include Gorse *Ulex europaeus*, Hawthorn *Crataegus monogyna*, Holly *Ilex aquifolium*, Honeysuckle *Lonicera periclymenum* and young Rowan. The associated ground flora is typically species poor and characterised by species such as Bramble *Rubus fruticosus agg.*, Cleavers, Cock's-foot *Dactylis glomerata*, Common Bent *Agrostis capillaris*, Common Nettle, Common Sorrel *Rumex acetosa ssp. acetosa*, Cow Parsley *Anthriscus sylvestris* and Rosebay Willowherb *Chamerion angustifolium*. More rarely occurring species include Bracken *Pteridium aquilinum*, Broad Buckler-fern *Dryopteris dilatata* and Hawkweed *Hieracium agg.*

Target Note 2 (see Photograph 4)

This refers to a woodland plantation to the west of the application site. The woodland forms part of a larger linear plantation which borders long sections of the B1416. Approximately 70m wide, the plantation is mixed with mature Alder *Alnus glutinosa*, Downy Birch *Betula pubescens*, Scots Pine and Silver Birch along with rarely occurring European Larch *Larix decidua* and Pedunculate Oak *Quercus robur*. The shrub layer is sparse with occasional Holly, Rhododendron *Rhododendron ponticum* and rarely occurring Gorse. The woodland is open and grazed at times and has a typically grass dominated and species-poor ground flora. Characteristic species includes grasses such as Creeping Soft-grass *Holcus mollis*, Sweet Vernal-grass *Anthoxanthum odoratum* and Yorkshire-fog *Holcus lanatus* along with more rarely occurring Bramble, Broad Buckler-fern, Broad-leaved Dock, Common Sorrel, Hedge Bedstraw *Galium album* and Hogweed *Heracleum sphondylium*. Characteristic woodland species although typically rare are present locally, for example, Hairy Wood-rush *Luzula pilosa*, Lords-and-Ladies *Arum maculatum*, Wood Sage *Teucrium scorodonia* and Wood-sorrel *Oxalis acetosella*. A grassed track is present at the eastern boundary of the woodland (see Photograph 5) and forms a boundary between the woodland and proposed drill site. The track is typically grass dominated with species such as Annual Meadow-grass *Poa annua*, Creeping Bent and Perennial Rye-grass along with rarely occurring forbs such as Broad-leaved Dock, Common



Chickweed, Common Mouse-ear, Common Nettle, Creeping Buttercup, Dandelion and Greater Plantain. The track is locally bare as a result of trampling by cattle and/or vehicle disturbance.

Target Note 3 (see Photograph 6)

Forming the northern boundary of the woodland, Target Note 3 is essentially a continuation of the ditch referred to in Target Note 1 above. The ditch remains semi-defunct whilst the ground flora is better-developed than in the main woodland block with species such as Bracken, Bramble, Broad Buckler-fern, Bush Vetch *Vicia sepium*, Common Bent, Common Dog-violet *Viola riviniana*, Common Sorrel and Hard-fern *Blechnum spicant*. Ruderals are locally prominent with locally frequent Common Nettle and Rosebay Willowherb.

Target Note 4 (see Photograph 7)

This refers to the eastern boundary of the B1416 which will provide the temporary access to the proposed drill site. The boundary comprises of a 2-2.5m wide roadside verge with associated dry stone wall and fence. The verge supports a typical flora with grasses such as Red Fescue *Festuca rubra sens. lat.*, Yorkshire-fog and more rarely occurring Cock's-foot and Tufted Hair-grass *Deschampsia cespitosa ssp. cespitosa*. Forbs include occasional Common Knapweed *Centaurea nigra*, Common Nettle, Cow Parsley, Creeping Thistle *Cirsium arvense*, Curled Dock *Rumex crispus*, Dandelion, Meadow Buttercup *Ranunculus acris*, Ribwort Plantain *Plantago lanceolata* and Yarrow *Achillea millefolium*. Occasional Gorse is present alongside the wall.

Target Note 5 (see Photograph 8)

Forming the eastern boundary of the field within which the proposed drill site will be located, this is an open fenced field boundary with occasional Gorse and more rarely occurring Grey Willow and Hawthorn. The field boundary has an associated semi-defunct ditch which has been recently cleared and supports a re-establishing vegetation with species such as Great Willowherb *Epilobium hirsutum* and Soft-rush *Juncus effusus*.

Other Habitats

Although not impacted by the proposed drill site, to the west of the B1416, UGGLEBARNBY MOOR which forms part of the wide North York Moors SSSI, SAC and SPA, typically comprises of a dense band of trees and shrubs alongside the road before quickly grading into a mosaic with patches of Gorse scrub, scattered self-established birch and Scots Pine and Heather *Calluna vulgaris* dominated moorland (see Photograph 9).

Invasive Species

There was no evidence of any invasive species such as Japanese Knotweed *Fallopia japonica* on or in the vicinity of the application site. Rhododendron is present in the adjacent plantation woodland. This species would not, however, be disturbed by the proposal.



5.4 **Breeding Birds**

5.4.1 Survey Methodology

A walkover survey of the site was undertaken and all birds either seen or noted by call were recorded. Observations were likewise made in relation to confirmation of breeding, for example, identifying nest sites, birds carrying nest material, alarm calling, etc.

5.4.2 Survey Results

With the exception of the northern field boundary which will be breached to provide the temporary site access, the application site provides a potential breeding habitat only for ground nesting species. Specific to such species, whilst Skylark *Alauda arvensis* was present in fields to the north-east, it was not present in the proposed drill site field. This is possibly due to the adjacent plantation woodland which restricts the view and is likely to deter such species. Several Meadow Pipit *Anthus pratensis* were present in the wider field although were considered to be feeding as opposed to nesting.

With regard to the northern field boundary, this was found to support small numbers of breeding birds, with nesting Chaffinch *Fringilla coelebs* and Woodpigeon *Columba palumbus* present. A greater diversity of species was associated with the plantation woodland. This yielded further records of Chaffinch and Woodpigeon along with additional species such as Blackcap *Sylvia atricapilla*, Blue Tit *Cyanistes caeruleus*, Chiffchaff *Phylloscopus collybita*, Carrion Crow *Corvus corone*, Coal Tit *Periparus ater*, Dunnock *Prunella modularis*, Goldcrest *Regulus regulus*, Great Tit *Parus major*, Robin *Erithacus rubecula* and Wren *Troglodytes troglodytes*, all of which are likely to breed in the plantation. The scrub and woodland on the western side of the B1416 was also found to support a similar range of species. Slightly better-structured, this also provided a habitat for additional species, for example, Blackbird *Turdus merula*, Pheasant *Phasianus colchicus*, Song Thrush *Turdus philomelos*, Willow Warbler *Phylloscopus trochilus* and Yellowhammer *Emberiza citrinella*.

Other species recorded feeding locally during the survey were Goldfinch *Carduelis carduelis*, Herring Gull *Larus argentatus*, Magpie *Pica pica* and Swallow *Hirundo rustica*.

5.5 **Badger**

5.5.1 Survey Methodology

A standard badger survey was undertaken involving a detailed walkover survey of the entire site to record evidence of setts as well as field signs such as paths, hairs, latrines, etc. The survey was likewise extended into the wider local area.

5.5.2 Survey Results

Whilst no Badger setts were noted on or in close proximity to the application site, Badger paw prints were noted along the western boundary of the proposed drill site field with a well-used path and latrine site towards the northern edge of the plantation woodland. This path crosses the B1416 and continues west across Ugglebarnby Moor. It is likely that these field signs are associated with a large main Badger sett which is present approximately 400m to the south of the site (exact location not specified) which was found recently during unrelated fieldwork by PCA. The latrine site possibly marks a territorial boundary of this social group and another based around another main sett some distance to the north or west.

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5.6 Bats

5.6.1 Survey Methodology

With no buildings in the study area or its immediate surrounds, roost sites were potentially associated with trees only. These were assessed on the basis of the presence of features typically associated with tree roosting bats, for example, woodpecker holes, trunk and branch splits, rot holes (cavities) where branches have been removed, frost cracks, hollow sections of trunk, branches or even roots, cavities beneath old root buttresses, beneath loose bark, behind dense ivy, in dense epicormic growth and in bat or bird boxes. With regard to trees favoured by roosting bats, a number of general principles were used, in particular, tree species usually favoured by roosting bats are Oak, Ash, Beech, Elm, Scots Pine and Willow. Trees of less than 30cm diameter and less than 80 years old are least likely to contain roosts and trees greater than 50cm diameter and more than 120 years old are most likely to contain roosts.

5.6.2 Survey Results

Mature trees of potential relevance to the proposed drill site are associated only with the northern field boundary which will provide a temporary site access. None of the trees along this boundary showed any evidence of roosting bats and all were considered to offer little or no potential for roosting. Irrespective of this, it should be readily possible to establish an access through this boundary with little impact on the mature trees. Although not impacted by the proposal, in the wider local area, several trees, particularly mature Alder and Scots Pine displayed holes and other field signs associated with tree roosting bats. No confirmed usage was, however, found.

Some foraging by bats is also likely along B1416, woodland plantation and other habitats locally. Such usage would not, however, be of any particular relevance to the proposed drill site.

5.7 Other Species

As part of the survey, consideration was given to the potential for other key rare or legally protected species to be present within the site. This was undertaken through a combination of desk-study, habitat assessment and direct search. Where applicable, consideration was given to the wider local area.

In relation to amphibians, the relevant OS 1:25000 map indicates no ponds within 500m of the application site. With no optimum potential breeding habitat, this group of species are not considered to be relevant to the proposed drill site.

With regard to reptiles, Adder *Vipera berus* and Common Lizard *Zootoca vivipara* are species which are known to occur on Ugglebarnby Moor. Slow-worm *Anguis fragilis* is also a species which is almost certainly present on the fringes of this moorland. Despite these species being in relative close proximity to the proposed drill site, B1416 is likely to represent a significant barrier to reptile movement. Irrespective of this, the intensively farmed landscape to the east of the road is a typically hostile habitat for this group of species.

In terms of species such as Water Vole *Arvicola terrestris*, ditches locally are typically defunct or semi-defunct and therefore provide a very poor potential habitat. On a precautionary basis, the minor ditch along the eastern boundary of the field within which the drill site will be located was searched for field signs although no evidence of usage was found.

With regard to other mammals, Brown Hare *Lepus europaeus* is a species which is known to be present in farmland areas locally. There is, however, nothing to suggest that the proposed drill site or its surrounds are of any particular value to this species.

No other locally important species, for example, Hedgehog *Erinaceus europaeus*, were noted during the field surveys.

6.0 EVALUATION

6.1 Plants/Habitats

The proposed drill and temporary access route site supports a limited range of species typical of the habitats encountered on and adjacent to the site. In terms of individual species, no nationally or regionally rare or scarce plants were encountered during the surveys and all species are common or very common in the habitats encountered on the site.

The arable farmland which dominates the site is a poor habitat typical of intensive agriculture and of negligible value. This is also the case with regard to the improved pasture which will be used for the temporary access. With regard to the impacted roadside verge, this is a typical and relatively species-poor verge of low value. The northern field boundary, although open and often poorly structured, is relatively species-rich and mature. As such, it is considered to be of moderate value when considered in the local context.

In the wider area, the most valuable habitats are those associated with Ugglebarnby Moor. Forming part of the designated SSSI and SAC, this moorland provides a habitat of national importance and forms part of larger site of European importance. These habitats are not, however, of any relevance to the proposed drill site.

6.2 Breeding Birds

The majority of the proposed site is currently a breeding bird habitat of little or no value. This is particularly true of the open arable field sections. Whilst arable fields in the wider local area provided a habitat for Skylark, breeding is typically found in the larger more open sections of fields. It is much less likely to use sections of fields closer to field boundaries or adjacent woodlands as is the case for the section where the proposed drill site is located.

Small numbers of birds were recorded from the impacted northern field boundary. This is, however, an open and poorly-structured habitat of limited value as a breeding habitat. Higher value habitats locally are associated with the plantation woodland to the west of the site and scrub/woodland sections on the eastern edge of Ugglebarnby Road. These provide a locally important habitat for a typical range of breeding species.

Whilst the range of species recorded was typical of the habitats found locally, several of the species are declining and therefore of conservation concern. In particular, Song Thrush, Skylark and Yellowhammer, are UK BAP Priority Species which are also included on the British Trust for Ornithology (BTO) Red List of birds of high conservation concern. The Red List refers to species which have typically seen a severe decline in the UK breeding population size of more than 50% over the last 25 years or over the entire period used for assessments since the first Birds of Conservation Concern (BoCC) review in 1969. They are also priority species of the North York Moors BAP which contains a specific SAP for farmland birds. The presence of these species is possibly indicative of a locally important farmland bird population in the wider local area.

With regard to other species, whilst all are common in habitats such as those provided by the site and its surrounds, Dunnock and Willow Warbler are included on the BTO Amber List. This refers to species which have seen a moderate decline (by more than 25% but less than 50%) in breeding numbers over the last 25 years.

6.3 Other Species

On the basis of the current survey there is nothing to suggest that the survey area is of any value to any other individual species or species group.

7.0 IDENTIFICATION & ASSESSMENT OF ECOLOGICAL IMPACTS

7.1 Identification of Potential Impacts

7.1.1 Detail of the Proposed Drill Site

The proposal includes the construction of a temporary compound measuring approximately 80m x 80m within which a 33m drilling rig would be installed. The works would broadly comprise the following:

- An area approximately 80m x 80m would be fenced, then cleared of topsoil and subsoil (if necessary) to provide a level base. Cleared material would be stored in bunds no greater than 3m in height at the site perimeter. These bunds would not be seeded.
- A layer of terram and geogrid membrane would be laid and then covered with single-sized aggregate to create a stable base. Site facilities would then be set down on this base and would include offices, storage facilities, equipment, etc. A drill rig would then be brought on to site and erected using a crane. All transport of materials, etc. on and off site will be via large vehicles of articulated lorry size. Not including aggregate imports, at least 40 vehicle journeys will be made to/from site during construction of the compound.
- The rig would operate 24 hours a day, 7 days per week and would be minimally illuminated at night time. The rig would drill to a depth of approximately 1700m.
- Arisings would be transported from site using large articulated lorry sized vehicles. Approximately 5 vehicle journeys would be made to/from the site when operational.
- Once drilling is complete, the borehole would be sealed with cement, the site would be broken down, all imported materials removed and the area restored and returned to its previous use. The whole process from soil strip to soil replacement/reseeding is anticipated to take approximately eight weeks. This would, however, be dependent upon drilling progress.

7.1.2 Identification and Assessment of Potential Impacts

Given the low value of the habitats in and adjacent to the proposed drill site and the absence of sensitive receptors in the relevant zone of influence, there are unlikely to be any significant adverse impacts as a result of the drilling operations.

Impacts associated with the works are essentially associated with the temporary loss of habitat, i.e. a section of arable field, a short section of eastern verge/boundary of the B1416 and a short section of the northern field boundary. Given that these habitats can all be readily reinstated on completion of the works, there should be no permanent impacts.

In terms of impacts on individual species, these are likely to be restricted to localised disturbance to birds and other species in the immediate wider local area. Whilst some disturbance is inevitable, this is not regarded as a significant impact, there being significant areas of alternative habitat for any displaced birds/animals in the wider local area.

8.0 MITIGATION AND ENHANCEMENT

Strict mitigation requirements relate only to ensuring legal compliance in respect of the legal protection afforded all birds whilst nesting. A number of other precautionary and other recommendations are made in relation to pre-construction surveys and habitat reinstatement as follows:

8.1 Breeding Birds

The optimum scenario in terms of addressing the risk of encountering breeding birds is to establish the drill site outside the breeding season (after approximately mid-July). Under this scenario, there is no risk of encountering breeding activity and the works can proceed without any specific advanced consideration of breeding birds. If the drill site is established during the period when birds could potentially be breeding, it will be necessary to ensure that no birds are present within temporarily impacted habitats prior to the establishment works commencing. The following approach would be followed:

- Before works commence a suitably qualified or experienced ornithologist will undertake a careful survey of the habitats within the site to ensure that there are no nesting birds.
- The working area will be observed for at least 30 minutes and note taken of whether any birds are nesting or preparing to nest (e.g. carrying nest building materials and/or food for the young).
- To avoid disturbance to any possible nesting birds the observations will take place from a reasonable distance from the working area.
- Birds incubating eggs are extremely illusive and therefore a more detailed search of specific habitat, particularly areas of very dense vegetation may be necessary. Particular attention will be made during such searches to avoid disturbance.
- If no signs of nesting birds are observed then works may start.
- A record of the observations and any results will be made and retained for reference.
- If, during the inspection, active nests are identified, the works will be postponed until after the young have fledged.

8.2 Pre-construction Survey

In addition to the above recommended pre-construction survey for breeding birds, it is recommended that the site and its immediate surrounds should be subject to a further general walkover survey. This is essentially to re-confirm the continued validity of the baseline and to ensure that no additional potential ecological constraints have become relevant in the intervening period between this survey and drill site establishment.

8.3 Establishment of Site Access

With regard to the northern field boundary, this is already an open boundary where an access should be readily achievable with minimum tree loss. It is therefore recommended that existing open sections are used wherever possible. Likewise, where trees may be impacted, options such as

coppicing and temporary removal are recommended with replanting following completion of the works. Whilst the availability and likely success of this option is dependent upon the impacted tree species, it should be readily achievable for species such as birch or willow

8.4 Habitat Reinstatement

Wherever possible, it is recommended that habitats impacted by the drill site, i.e. eastern verge/boundary of the B1416 and a short section of the northern field boundary are reinstated to their previous state. Replacement stock should reflect the overall diversity of the local hedgerow and field boundary network and be with local provenance stock wherever this available.

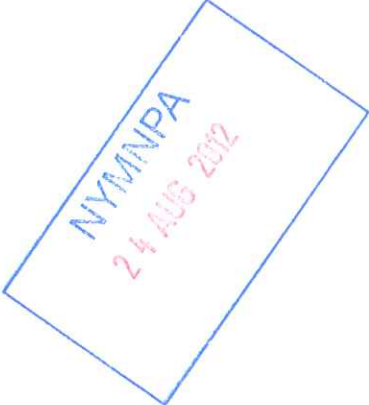
9.0 RESIDUAL ASSESSMENT/CONCLUSION

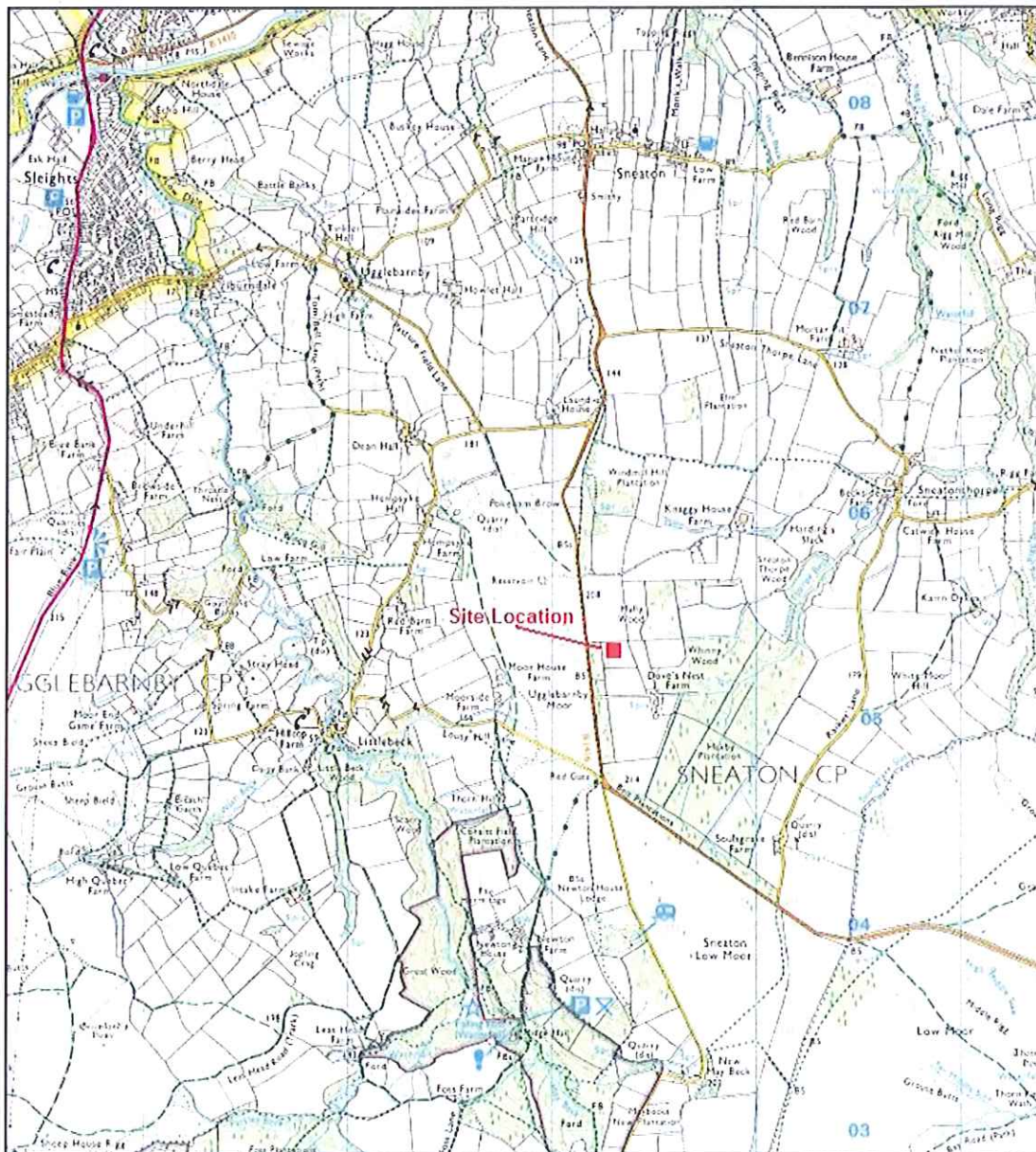
In summary, the ecological survey and assessment has shown that the proposed drill site is a poor habitat of negligible ecological value. The site will quickly be restored to its previous arable use on completion of the drilling operations with the short impacted boundary section also subject to rapid reinstatement. Residual effects of the use of this area as a temporary drill site are therefore considered to be negligible.

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FIGURE 1 – SITE LOCATION PLAN





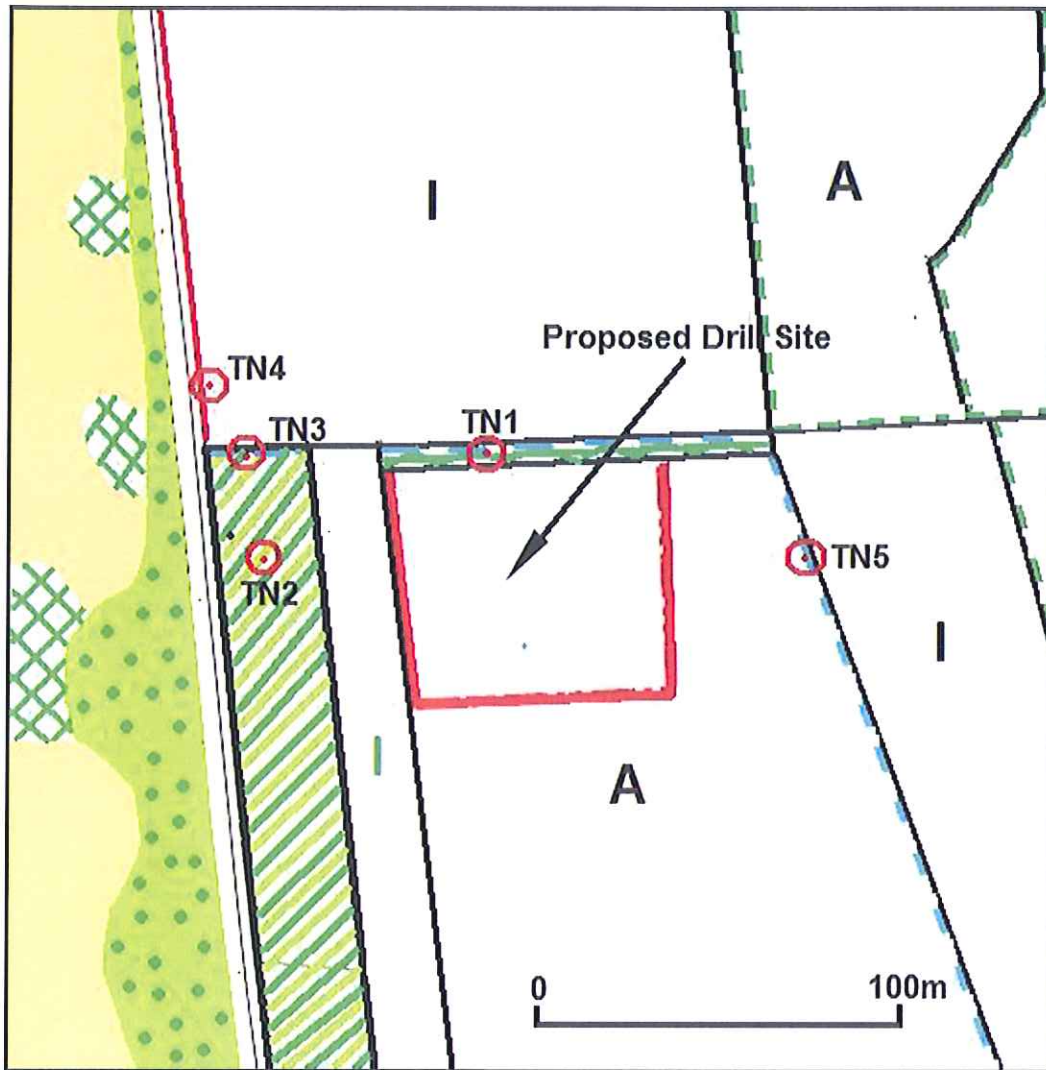
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FIGURE 2 – HABITAT PLAN

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KEY

	Application Boundary
A	Arable
I	Improved Grassland
	Fence
	Wall
	Species-rich Boundary
	Defunct Hedgerow/Boundary
	Defunct/Semi-defunct Ditch
	Mixed Plantation
	Mixed Semi-natural Woodland
	Scrub (Gorse)
	Heather Dominated Moorland
	Target Note

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APPENDIX 1 – BOTANICAL SPECIES LIST

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Scientific Name

Achillea millefolium
Agrostis capillaris
Agrostis stolonifera
Alnus glutinosa
Anthoxanthum odoratum
Anthriscus sylvestris
Arrhenatherum elatius
Arum maculatum
Bellis perennis
Betula pendula
Betula pubescens
Blechnum spicant
Cardamine flexuosa
Centaurea nigra
Cerastium fontanum
Chamerion angustifolium
Cirsium arvense
Cirsium palustre
Cirsium vulgare
Crataegus monogyna
Dactylis glomerata
Deschampsia cespitosa ssp. cespitosa
Dryopteris dilatata
Elytrigia repens
Epilobium ciliatum
Epilobium hirsutum
Equisetum arvense
Fagus sylvatica
Festuca rubra sens. lat.
Fraxinus excelsior
Galium aparine
Galium saxatile
Geranium dissectum
Glechoma hederacea
Hedera helix
Heracleum sphondylium
Hieracium agg.
Holcus lanatus
Holcus mollis
Ilex aquifolium
Juncus effusus
Lamium purpureum
Larix decidua
Lolium perenne
Lonicera periclymenum
Luzula pilosa
Oxalis acetosella
Pinus sylvestris
Plantago lanceolata
Plantago major

Common Name

Yarrow
Common Bent
Creeping Bent
Alder
Sweet Vernal-grass
Cow Parsley
False Oat-grass
Lords-and-Ladies
Daisy
Silver Birch
Downy Birch
Hard-fern
Wavy Bitter-cress
Common Knapweed
Common Mouse-ear
Rosebay Willowherb
Creeping Thistle
Marsh Thistle
Spear Thistle
Hawthorn
Cock's-foot
Tufted Hair-grass
Broad Buckler-fern
Common Couch
American Willowherb
Great Willowherb
Field Horsetail
Beech
Red Fescue
Ash
Cleavers
Heath Bedstraw
Cut-leaved Crane's-bill
Ground-ivy
Common Ivy
Hogweed
Hawkweed
Yorkshire-fog
Creeping Soft-grass
Holly
Soft-rush
Red Dead-nettle
European Larch
Perennial Rye-grass
Honeysuckle
Hairy Wood-rush
Wood-sorrel
Scots Pine
Ribwort Plantain
Greater Plantain



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<i>Poa annua</i>	Annual Meadow-grass
<i>Poa trivialis</i>	Rough Meadow-grass
<i>Pteridium aquilinum</i>	Bracken
<i>Quercus robur</i>	Pedunculate Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rhododendron ponticum</i>	Rhododendron
<i>Rosa canina</i>	Dog-rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex acetosa</i> ssp. <i>acetosa</i>	Common Sorrel
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Salix caprea</i>	Goat Willow
<i>Salix cinerea</i> ssp. <i>cinerea</i>	Grey Willow
<i>Sambucus nigra</i>	Elder
<i>Senecio vulgaris</i>	Groundsel
<i>Sorbus aucuparia</i>	Rowan
<i>Stellaria media</i>	Common Chickweed
<i>Taraxacum</i> agg.	Dandelion
<i>Teucrium scorodonia</i>	Wood Sage
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Common Nettle
<i>Veronica persica</i>	Common Field-speedwell
<i>Vicia sepium</i>	Bush Vetch
<i>Viola riviniana</i>	Common Dog-violet

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APPENDIX 2 – FAUNA SPECIES LIST

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Birds

Scientific Name	Common Name
<i>Anthus pratensis</i>	Meadow Pipit
<i>Alauda arvensis</i>	Skylark
<i>Carduelis carduelis</i>	Goldfinch
<i>Columba palumbus</i>	Woodpigeon
<i>Corvus corone</i>	Carrion Crow
<i>Cyanistes caeruleus</i>	Blue Tit
<i>Emberiza citrinella</i>	Yellowhammer
<i>Erithacus rubecula</i>	Robin
<i>Fringilla coelebs</i>	Chaffinch
<i>Hirundo rustica</i>	Swallow
<i>Larus argentatus</i>	Herring Gull
<i>Parus major</i>	Great Tit
<i>Pariparus ater</i>	Coal Tit
<i>Phasianus colchicus</i>	Pheasant
<i>Phylloscopus collybita</i>	Chiffchaff
<i>Phylloscopus trochilus</i>	Willow Warbler
<i>Pica pica</i>	Magpie
<i>Prunella modularis</i>	Dunnock
<i>Regulus regulus</i>	Goldcrest
<i>Sylvia atricapilla</i>	Blackcap
<i>Troglodytes troglodytes</i>	Wren
<i>Turdus merula</i>	Blackbird
<i>Turdus philomelos</i>	Song Thrush

Mammals

<i>Meles meles</i>	Badger (Latrine and paw prints only)
<i>Oryctolagus cuniculus</i>	Rabbit



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APPENDIX 3 – PHOTOGRAPHIC RECORD

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Photograph 1 – Application Site, Viewed North-east from South-west Corner



Photograph 2 – Approximate Route of Temporary Access to the Proposed Drill Site

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Photograph 3 – Target Note 1 (Northern Field Boundary)



Photograph 4 – Target Note 2 (Woodland West of Application Site)

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Photograph 5 – Narrow Strip/Track Between Application Site and Woodland TN2



Photograph 6 – Target Note 3

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Photograph 7 – Target Note 4, Eastern Side of B1416 Providing Temporary Access



Photograph 8 – Target Note 5

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Photograph 9 – Ugglebarnby Moor, Section in Close Proximity to the B1416

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