



**KNAGGY HOUSE TEMPORARY DRILL SITE**

**ECOLOGICAL SURVEY & ASSESSMENT**

**PCAJ127/KH/V3**

**Submitted to:**

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Figure 1 – Site Location Plan

Figure 2 – Habitat Plan

Appendix 1 – Botanical Species List

Appendix 2 – Fauna Species List

Appendix 3 – Photographic Record







## 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 (EIA) on land at Knaggy House Farm (NGR NZ 893 058). The site will be subject to a planning application for a temporary drilling rig. The prepared compound for the drill rig will cover an area of approximately 100m x 80m. Material stripped to provide a stable platform for the rig would be stored adjacent to compound with an overall footprint that may extend up to approximately 180m x 150m. 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. This would initially use the existing temporary access to the Dove's Nest Borehole and would follow the southern boundary of the field to the south of the proposed drill site. It would then turn northwards towards the proposed drill site and run along the eastern edge of the northern field at Doves Nest Farm, adjacent to the field boundary before crossing the private road to Knaggy House Farm and into the proposed drill site.

A site location plan is provided as Figure 1. The site comprises entirely of an improved pasture field. The site is bordered to the north by a continuation of the same field, to the north of which is a mature mixed woodland (Windmill Hill Plantation), to the west by a strip of plantation woodland which is a continuation of Windmill Hill Plantation, to the east by a fenced field boundary with arable farmland beyond and to the south by the access to Knaggy House Farm. The access to the site follows the perimeter of the pasture field to the south. 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. Given that detailed surveys have been on-going at Dove's Nest Farm/Haxby Plantation in relation to the proposed minehead, as well as within and immediately adjacent to the application site as part of the proposed connecting pipeline, these are relied upon. A further site-specific updated walkover was completed on 18<sup>th</sup> December 2012.

### 2.2 Personnel

The field survey and EIA 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. More detailed surveys completed as part of the EIA for the proposed minehead and connecting pipeline are relied upon, where appropriate.





## 2.4 Survey Constraints

Given that surveys have been on-going throughout 2012 in relation to the proposed minehead and connecting pipeline, there are no survey constraints.

## 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 (Knaggy House 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
- 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.

### 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.





More recently, the England Biodiversity Group has published a new framework to drive the work on priority species and habitats in England. 'Securing Biodiversity: A New Framework for Delivering Priority Habitats and Species in England' aims to build on the strengths of the UK Biodiversity Action Plan (UK BAP) and to enhance the recovery of priority habitats and species in England (published under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006). Following the publication of the new framework, the UK BAP partnership no longer operates but many of the tools and resources originally developed under the UK BAP still remain of use, for example, background information on UK BAP priority habitats and species which still form the basis of much biodiversity work at country level.



## 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).

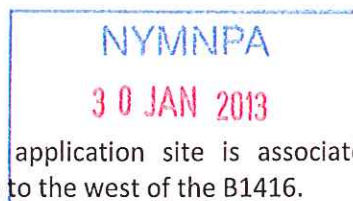
In terms of the results of the desk study and data request, no legally protected species records were identified for the site or its immediate surrounds. In the wider local area, the NEYEDC provided records of a number of legally protected or rare/noteworthy species recorded within approximately 2km 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 900m 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.

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 1.2km 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 on Figure 5.2 below.

### 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 1km 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 1km 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. In relation to NYMNP Core Policy C, Windmill Hill Plantation to the north and west of the site is included as woodland under this policy. In the wider area this is also the case for the woodland to the north of Haxby Plantation which is approximately 900m south-east of the proposed drill site.

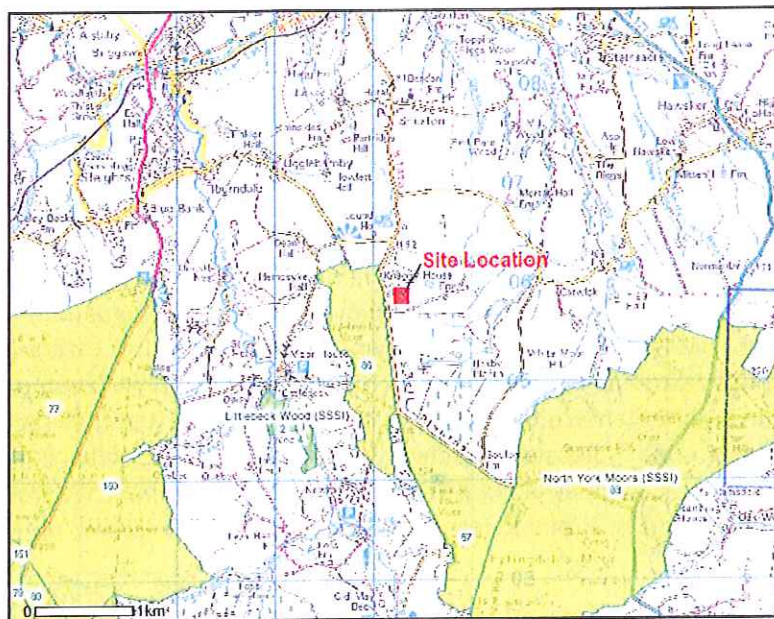


Figure 5.2: North York Moors SSSI, SAC & SPA and Littlebeck Wood SSSI (reproduced from Natural England, 'Nature on the Map')

### 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

The entire application site is located with an improved permanent pasture (see Photographs 1,2 and 12). The field is dominated by Perennial Rye-grass *Lolium perenne* with more occasional Creeping Buttercup *Ranunculus repens*, Rough Meadow-grass *Poa trivialis*, White Clover *Trifolium repens* and Yorkshire-fog *Holcus lanatus*. More rarely occurring species include Broad-leaved Dock *Rumex obtusifolius*, Common Mouse-ear *Cerastium fontanum*, Creeping Bent *Agrostis stolonifera*, Creeping Thistle *Cirsium arvense*, Dandelion *Taraxacum agg.*, Daisy *Bellis perennis* and Spear Thistle *Cirsium vulgare*. The field is tightly grazed by horses and is uniform across virtually its entire area.





Target Note 1 (see Photograph 6)

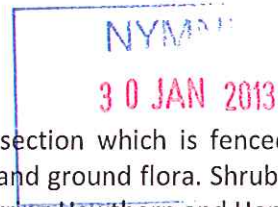
This refers to the eastern field boundary (see Photograph 3). It comprises of a post and wire fence with an associated 5m wide strip of vegetation on its eastern side. This is characterised by open Bramble *Rubus fruticosus* agg. scrub with very rarely occurring Gorse *Ulex europaeus* and Hawthorn *Crataegus monogyna*. The scrub becomes dense and complete with additional Blackthorn *Prunus spinosa* in the northern 50m section adjacent to Windmill Hill Plantation. Large sections of the strip of vegetation are dominated by grasses and ruderals with species such as Cleavers *Galium aparine*, Common Nettle *Urtica dioica*, Cock's-foot *Dactylis glomerata*, Common Couch *Elytrigia repens*, Cow Parsley *Anthriscus sylvestris*, Creeping Buttercup, Hogweed *Heracleum sphondylium* and Rosebay Willowherb *Chamerion angustifolium*.

Target Note 2 (see Photograph 4)

This refers to a linear section of woodland to the west of the site which extends to the north and becomes part of the more extensive Windmill Hill Plantation. The woodland is of mixed composition albeit with a dominance of deciduous species. Characteristic species in the canopy include particularly Alder *Alnus glutinosa* along with more occasional or rarely occurring Pedunculate Oak *Quercus robur*, Scots Pine *Pinus sylvestris* and Silver Birch *Betula pendula*. Species such as Ash *Fraxinus excelsior*, Beech *Fagus sylvatica* and Sycamore *Acer pseudoplatanus* are present more rarely. The woodland is even-aged and has a very poor shrub layer which is essentially restricted to very rarely occurring Holly *Ilex aquifolium*. Hawthorn is also present rarely along the eastern edge of the woodland. Although partly fenced, the fencing is removed in parts and as such the woodland is grazed. This limits the ground flora significantly with large sections of bare ground with rarely occurring patches of woodland grasses along with rarely occurring Bramble. Characteristic woodland species included rarely occurring Wood-sorrel *Oxalis acetosella* and Yellow Pimpernel *Lysimachia nemorum*.

Target Note 3 (see Photograph 5)

Within the same woodland block as TN2, TN3 refers to a small section which is fenced. In the absence of grazing, this section has a better developed shrub layer and ground flora. Shrubs include locally frequent young Birch *Betula* sp., along with more rarely occurring Hawthorn and Honeysuckle *Lonicera periclymenum*. The ground flora is characterised by abundant Bramble. Occasional patches of Rosebay Willowherb are also present, whilst damper grass dominated patches support Tufted Hair-grass *Deschampsia cespitosa* subsp. *cespitosa*. Woodland species such as Wood-sorrel and Yellow Pimpernel are present rarely.



Target Note 4 (see Photograph 6)

Forming the access point off the B1416, this is a fenced field boundary with an associated dry stone wall. Although largely open, occasional plantings include several Holly, ornamental Willow *Salix* sp. and Leyland Cypress *Cupressocyparis leylandii*. Occasional naturally established Gorse is also present. The associated ground flora includes occasional patchy Bracken *Pteridium aquilinum* and Bramble, along with patchy ruderals which include Common Nettle, Hogweed and Rosebay Willowherb. The associated roadside verge supports a typical flora with frequent grasses such as False Oat-grass *Arrhenatherum elatius*, Red Fescue, and Yorkshire-fog and more rarely occurring Cock's-foot and Tufted Hair-grass. Forbs include occasional Common Knapweed, Common Nettle, Cow Parsley *Anthriscus sylvestris*, Creeping Thistle, Curled Dock *Rumex crispus*, Dandelion, Meadow Buttercup *Ranunculus acris*, Ribwort Plantain *Plantago lanceolata* and Yarrow *Achillea millefolium*.





Target Note 5 (see Photograph 7)

Forming the northern boundary of the woodland (TN 6), this is a semi-defunct ditch and woodland edge habitat which supports a ground flora which is better developed than in the adjacent main woodland block. Species present include Bracken, Bramble, Broad Buckler-fern *Dryopteris dilatata*, Bush Vetch *Vicia sepium*, Common Bent *Agrostis capillaris*, Common Dog-violet *Viola riviniana*, Common Sorrel *Rumex acetosa subsp. acetosa* and Hard-fern *Blechnum spicant*. Ruderals are locally prominent with locally frequent Common Nettle and Rosebay Willowherb.

Target Note 6 (see Photograph 8)

This refers to a woodland plantation to the south of the access road. 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, Downy Birch *Betula pubescens*, Scots Pine and Silver Birch *Betula pendula* along with rarely occurring European Larch *Larix decidua* and Pedunculate Oak. 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 include grasses such as Creeping Soft-grass *Holcus mollis*, Sweet Vernal-grass *Anthoxanthum odoratum* and Yorkshire-fog along with more rarely occurring Bramble, Broad Buckler-fern, Broad-leaved Dock, Common Sorrel, Hedge Bedstraw *Galium album* and Hogweed. 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. The woodland is locally damp, particularly in its south-eastern section where a small open shaded ditch is present.

Target Note 7 (see Photograph 9)

This refers to a fenced field boundary approximately 8m wide with a defunct ditch on its northern side which borders the access road to the site. The boundary is species-rich and comprises predominantly of mature trees with species such as Beech, Goat Willow *Salix caprea*, Grey Willow *Salix cinerea ssp. cinerea*, Rowan *Sorbus aucuparia*, Scots Pine and Silver Birch. Lower shrubs are rare and include Gorse, Hawthorn, Holly, Honeysuckle and young Rowan. The associated ground flora is typically species poor and characterised by species such as Bramble, Cleavers, Cock's-foot, Common Bent, Common Nettle, Common Sorrel, Cow Parsley and Rosebay Willowherb. More rarely occurring species include Bracken, Broad Buckler-fern and Hawkweed *Hieracium agg.*

Target Note 8 (see Photograph 10)

At the eastern end of boundary TN7, the access road trends north along the eastern boundary of the improved pasture. The boundary comprises of a fence line with occasional patches of Bramble and isolated shrubs which include Gorse, Hawthorn and Honeysuckle. In its northern section, Hawthorn becomes more frequent although never forms an intact hedgerow.

Target Note 10 (see Photograph 11)

This refers to the access track to Knaggy House Farm which is crossed by the access road to the site. It comprises of post and wire fences with associated narrow species-poor verges which are overgrown with grasses. Very rarely occurring young Hawthorn are present on the southern side.

Other Habitats





Although not impacted by the proposed borehole, to the west of the B1416, Ugglebarnby Moor which forms part of the wider North York Moors SSSI, SAC and SPA comprises of an initial dense band of trees and scrub alongside the road (see Photograph 12) which extends along the entire perimeter of the moor and extends into the main block of habitat for a distance of 30-60m. Tree species include Birch, Goat Willow *Salix caprea*, Grey Willow *Salix cinerea subsp. cinerea* and Scots Pine with occasional dense and extensive patches of Gorse scrub. Patches of Bracken *Pteridium aquilinum* are also present and are occasionally extensive. To the west, the scrub/woodland decreases and the habitat becomes more open with scattered trees and a mosaic of wet heath and Purple Moor-grass *Molinia caerulea* dominated mire. The habitat is apparently ungrazed and large tussocks of Purple Moor-grass *Molinia caerulea* are a feature throughout the moor. Other species include typical wet heath and moorland species such as Carnation Sedge *Carex panicea*, Compact Rush *Juncus conglomeratus*, Green-ribbed Sedge *Carex binervis*, Heather *Calluna vulgaris*, Soft-rush *Juncus effusus* and Tormentil *Potentilla erecta*. Sections of drier Heather dominated moorland are also present (see Photograph 13).

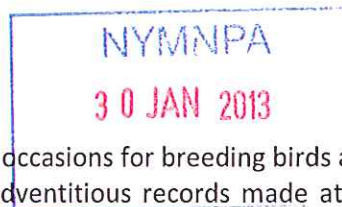
#### Invasive Species

There was no evidence of any invasive species such as Japanese Knotweed *Fallopia japonica* on or in the vicinity of the application site.

### 5.4 Breeding Birds

#### 5.4.1 Survey Methodology

The site and its surrounds have been surveyed on three separate occasions for breeding birds as part of the surveys for the proposed minehead and pipeline with adventitious records made at other times. 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

The proposed drill site provides a potential breeding habitat for ground nesting species only. Specific to such species, whilst Skylark *Alauda arvensis* was present in the arable field to the south-east in 2012, as well as other arable fields some distance to the north, it was not present in the application site. In relation to the access road, this runs along the western boundary of the field which provided a habitat for Skylark in 2012.

In the wider area, the woodland to the west of the application site (TN2 and TN3) provided a breeding habitat for a number of species. Whilst its poor structure detracts, species recorded from this habitat were Blackbird *Turdus merula*, Carrion Crow *Corvus corone*, Chaffinch *Fringilla coelebs*, Woodpigeon *Columba palumbus* and Wren *Troglodytes troglodytes*. Yellowhammer *Emberiza citronella* was also recorded from Hawthorn along the woodland edge. The main woodland block to the north associated with Windmill Hill Plantation is a larger woodland with a more complex structure. This yielded a similar range of species to those referred to above along with additional records of Blackcap *Sylvia atricapilla*, Chiffchaff *Phylloscopus collybita*, Dunnock *Prunella modularis*, Great Spotted Woodpecker *Dendrocopos major*, Pheasant *Phasianus colchicus*, Robin *Erithacus rubecula*, Song Thrush *Turdus philomelos*, Stock Dove *Columba oenas* and Treecreeper *Certhia familiaris*. Woodland adjacent to the access track (TN5 and TN6) provided a breeding habitat for Carrion Crow, Chaffinch and Woodpigeon along with additional species such as Blackbird, Blackcap, Blue Tit *Cyanistes caeruleus*, Chiffchaff, Coal Tit *Periparus ater*, Dunnock, Goldcrest *Regulus regulus*, Pheasant *Phasianus colchicus*, Robin, Song Thrush and Wren.



With regard to field boundaries, those around the site are typically post and wire fences with little or no potential breeding habitat. Better developed boundaries are, however, present in the wider local area and these provided breeding records for species such as Blue Tit, Dunnock, Goldfinch *Carduelis carduelis* and Whitethroat *Sylvia communis*. A small area of scrub/woodland to the east of the site yielded Willow Warbler *Phylloscopus trochilus*.

With regard to UGGLEBARNBY MOOR, the scrub and woodland sections supported a similar range of species with additional records of Goldfinch, Willow Warbler and Yellowhammer. Further to the west, the heathland/scattered tree habitats supported the declining Tree Pipit *Anthus trivialis*. The habitat also appeared to be apparently suitable for Nightjar *Caprimulgus europaeus* although no evidence of this species was found. No evidence of Golden Plover or Merlin was found from this adjacent moorland.

## 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.

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### 5.5.2 Survey Results

No Badger setts or other field signs were noted within or in close proximity to the application site. In relation to the access road, a well-used Badger path with latrine site(s) runs along the field boundaries (TN5 and TN6). In terms of setts in the wider local area, the closest main setts identified during surveys for the pipeline and minehead are approximately 1km from the site and therefore of no relevance to the application.

## 5.6 Bats

### 5.6.1 Survey Methodology

Whilst there is no potential roosting habitat within the application site, dusk foraging surveys have been completed as part of the EclA for the minehead/pipeline and are relied upon.

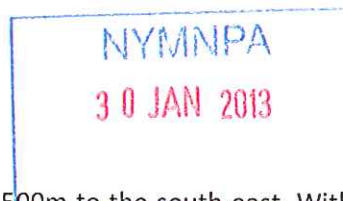
### 5.6.2 Survey Results

The generally open nature of the site and surrounding area results in a typically poor foraging habitat for bats. Local to the application site, the corridor associated with the B1416 along with adjacent woodlands (TN5 and TN6) proved to be a locally important foraging habitat/commuting corridor with records of both Common Pipistrelle *Pipistrellus pipistrellus* along with occasional Myotis (probably Brown Long-eared *Plecotus auritus*).

## 5.7 Other Species

As part of the surveys for the proposed minehead and pipeline, comprehensive surveys were completed for the full range of key rare or legally protected species. Specific to this application, these surveys found this part of the study area to be a low value habitat supporting no significant additional species.





In relation to amphibians, the closest ponds lie in excess of 500m to the south-east. With regard to reptiles, whilst Adder *Vipera berus* and Common Lizard *Zootoca vivipara* Common Lizard are present on Ugglebarnby Moor, the application site itself is a hostile habitat for this group of species.

With regard to other mammals, small numbers of Brown Hare *Lepus europaeus* were recorded from farmland locally. There is, however, nothing to suggest that the proposed drill site or its surrounds is 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 application site supports an extremely limited range of species typical of an improved pasture field. 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.

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

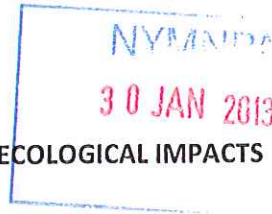
The application site is currently a breeding bird habitat of no value. Higher value habitats locally are associated with the plantation woodland to the north and west of the site and scrub/woodland sections on the eastern edge of Ugglebarnby Moor. Whilst the range of species recorded was typical of the 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 indicative of a locally important farmland bird population in the wider local area. Tree Pipit which was recorded from moorland to the west is also a BTO Red List species.

With regard to other species, whilst all are common in habitats such as those provided in the surrounding area, Dunnock, Stock Dove 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

### 7.1.1 Detail of the Proposed Drill Site

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

- An area approximately 80m x 80m would be cleared of topsoil and subsoil (if necessary) to provide a level base. Cleared material would be stored in bunds adjacent to the base.
- 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.

In terms of access, this initially will make use of the existing access to the on-going Dove's Nest drill site before trending east and then north along field boundaries to the proposed drill site. The access will be of temporary construction.

### 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 an improved pasture field. Given that this can readily be 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

Whilst there are not considered to be any strict mitigation requirements, precautionary recommendations are made in relation to breeding birds and a pre-construction survey as follows:

### 8.1 **Breeding Birds**

Given the timing of this application it is envisaged that all works will be undertaken outside of the breeding bird season i.e. outside of the approximate period March through to July. In the event that



this is not the case, it will be necessary to ensure that no birds are present within temporarily impacted habitats prior to the establishment works commencing.

## 8.2 Pre-construction Survey

On a precautionary basis, immediately prior to site establishment it is recommended that the site and its immediate surrounds are subject to a further general walkover survey. This would be 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.

## 9.0 RESIDUAL ASSESSMENT/CONCLUSION

In summary, the ecological survey and assessment has shown that the application site and route for the proposed access is a poor habitat of negligible ecological value. The site will quickly be restored to its previous farmland use on completion of the operations. Residual effects of the use of this area as a temporary borehole site are therefore considered to be negligible.



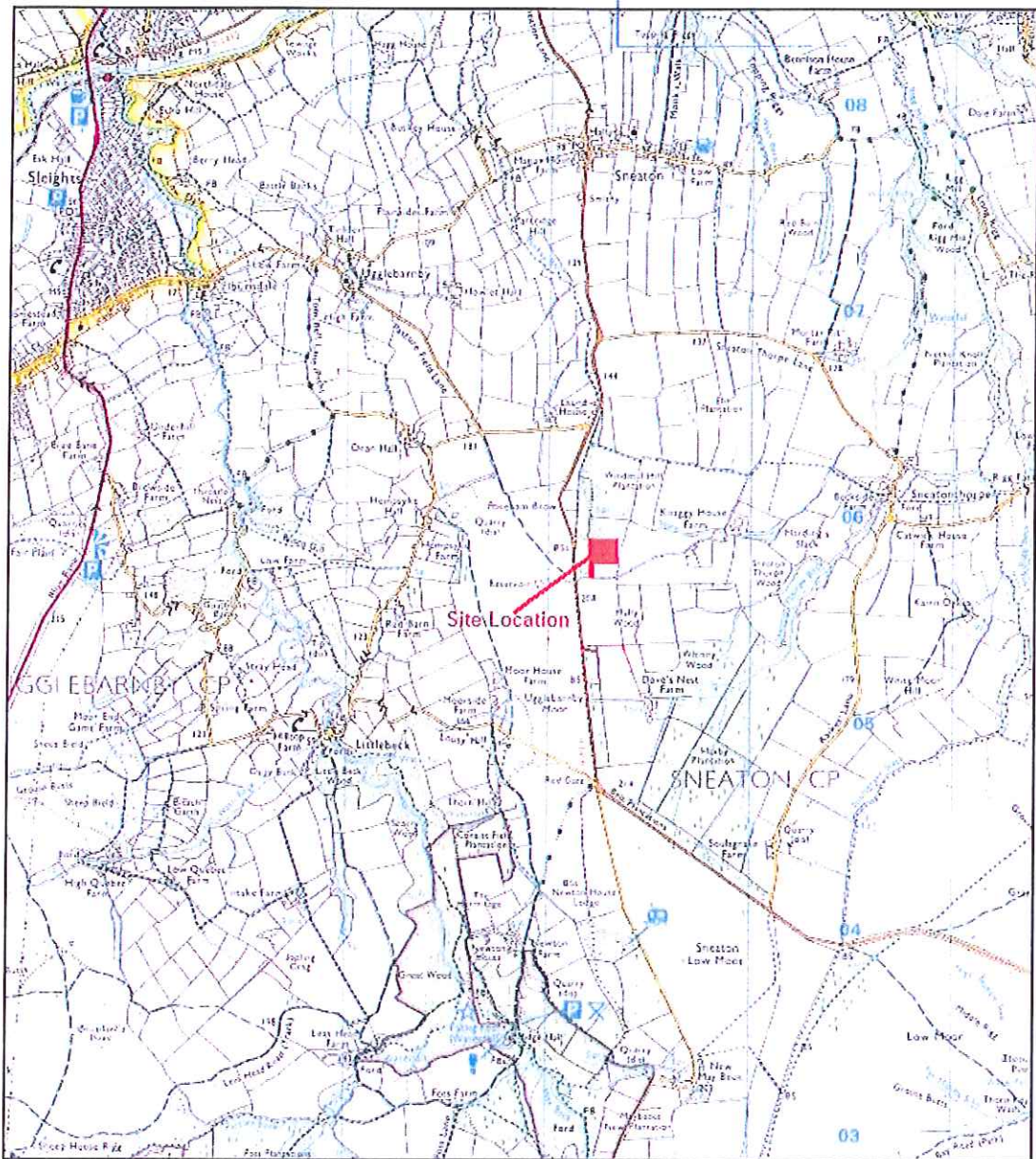




**FIGURE 1 – SITE LOCATION PLAN**

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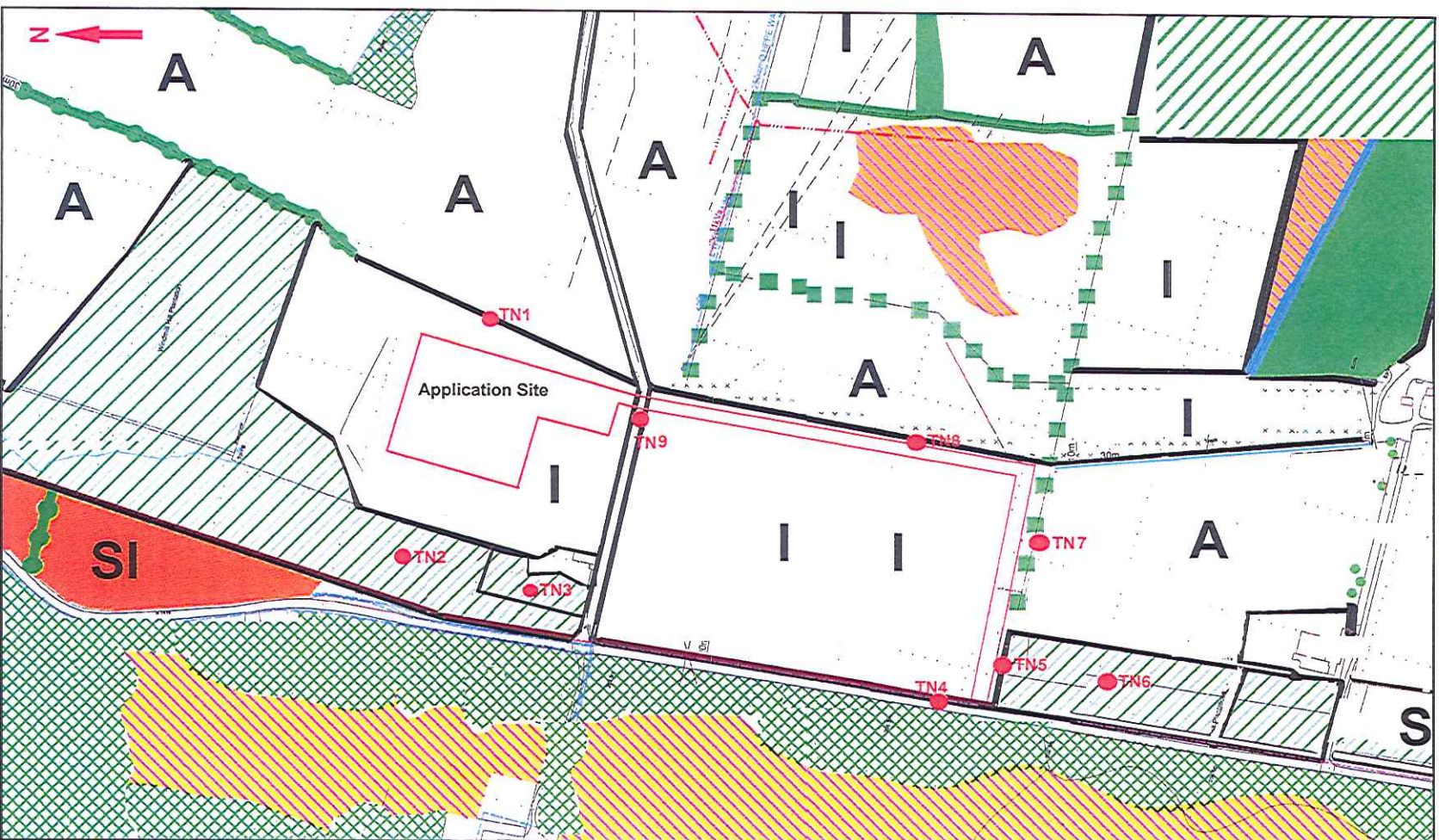




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FIGURE 2 – HABITAT PLAN

| KEY    |                                   |
|--------|-----------------------------------|
| A      | Arable                            |
| I      | Improved Grassland                |
| ● TN   | Target Note                       |
| —      | Fence                             |
| —      | Wall                              |
| —      | Species-poor Hedgerow             |
| —      | Mixed Hedgerow                    |
| ■ ■ ■  | Semi-defunct Boundary             |
| ▨      | Mixed Plantation                  |
| ▩      | Dense Scrub/Scrub-woodland Mosaic |
| SI     | Semi-improved Neutral Grassland   |
| ▨      | Wet Dwarf Shrub Heath             |
| XXXXXX | Scattered Scrub                   |
| ▨      | Marshy Grassland                  |
| ▨      | Coniferous Plantation             |



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## APPENDIX 1 – BOTANICAL SPECIES LIST

| Scientific Name                             | Common Name             |
|---|-------------------------|
| <i>Achillea millefolium</i>                 | Yarrow                  |
| <i>Agrostis capillaris</i>                  | Common Bent             |
| <i>Agrostis stolonifera</i>                 | Creeping Bent           |
| <i>Alnus glutinosa</i>                      | Alder                   |
| <i>Anthoxanthum odoratum</i>                | Sweet Vernal-grass      |
| <i>Anthriscus sylvestris</i>                | Cow Parsley             |
| <i>Arrhenatherum elatius</i>                | False Oat-grass         |
| <i>Bellis perennis</i>                      | Daisy                   |
| <i>Betula pendula</i>                       | Silver Birch            |
| <i>Betula pubescens</i>                     | Downy Birch             |
| <i>Blechnum spicant</i>                     | Hard-fern               |
| <i>Cardamine flexuosa</i>                   | Wavy Bitter-cress       |
| <i>Centaurea nigra</i>                      | Common Knapweed         |
| <i>Cerastium fontanum</i>                   | Common Mouse-ear        |
| <i>Chamerion angustifolium</i>              | Rosebay Willowherb      |
| <i>Cirsium arvense</i>                      | Creeping Thistle        |
| <i>Cirsium palustre</i>                     | Marsh Thistle           |
| <i>Cirsium vulgare</i>                      | Spear Thistle           |
| <i>Crataegus monogyna</i>                   | Hawthorn                |
| <i>Dactylis glomerata</i>                   | Cock's-foot             |
| <i>Deschampsia cespitosa ssp. cespitosa</i> | Tufted Hair-grass       |
| <i>Dryopteris dilatata</i>                  | Broad Buckler-fern      |
| <i>Elytrigia repens</i>                     | Common Couch            |
| <i>Epilobium hirsutum</i>                   | Great Willowherb        |
| <i>Equisetum arvense</i>                    | Field Horsetail         |
| <i>Fagus sylvatica</i>                      | Beech                   |
| <i>Festuca rubra sens. lat.</i>             | Red Fescue              |
| <i>Fraxinus excelsior</i>                   | Ash                     |
| <i>Galium aparine</i>                       | Cleavers                |
| <i>Galium saxatile</i>                      | Heath Bedstraw          |
| <i>Geranium dissectum</i>                   | Cut-leaved Crane's-bill |
| <i>Glechoma hederacea</i>                   | Ground-ivy              |
| <i>Hedera helix</i>                         | Common Ivy              |
| <i>Heracleum sphondylium</i>                | Hogweed                 |
| <i>Hieracium agg.</i>                       | Hawkweed                |
| <i>Holcus lanatus</i>                       | Yorkshire-fog           |
| <i>Holcus mollis</i>                        | Creeping Soft-grass     |
| <i>Ilex aquifolium</i>                      | Holly                   |
| <i>Juncus effusus</i>                       | Soft-rush               |
| <i>Lamium purpureum</i>                     | Red Dead-nettle         |
| <i>Larix decidua</i>                        | European Larch          |
| <i>Lolium perenne</i>                       | Perennial Rye-grass     |
| <i>Lonicera periclymenum</i>                | Honeysuckle             |
| <i>Luzula pilosa</i>                        | Hairy Wood-rush         |
| <i>Oxalis acetosella</i>                    | Wood-sorrel             |
| <i>Pinus sylvestris</i>                     | Scots Pine              |
| <i>Plantago lanceolata</i>                  | Ribwort Plantain        |
| <i>Plantago major</i>                       | Greater Plantain        |
| <i>Poa annua</i>                            | Annual Meadow-grass     |
| <i>Poa trivialis</i>                        | Rough Meadow-grass      |







|  |                        |
|--|------------------------|
| <i>Polygonum aviculare</i>               | Knotgrass              |
| <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>Sambucus nigra</i>                    | Elder                  |
| <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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Nb. Species list includes species recorded from woodland and other habitats in the immediate wider local area.



## APPENDIX 2 – FAUNA SPECIES LIST





### Birds

#### Scientific Name

*Anthus pratensis*  
*Anthus trivialis*  
*Alauda arvensis*  
*Carduelis carduelis*  
*Columba oenas*  
*Columba palumbus*  
*Corvus corone*  
*Cyanistes caeruleus*  
*Dendrocopos major*  
*Emberiza citrinella*  
*Erithacus rubecula*  
*Fringilla coelebs*  
*Motacilla alba*  
*Parus major*  
*Periparus ater*  
*Phasianus colchicus*  
*Phylloscopus collybita*  
*Phylloscopus trochilus*  
*Pica pica*  
*Prunella modularis*  
*Sturnus vulgaris*  
*Sylvia atricapilla*  
*Sylvia communis*  
*Troglodytes troglodytes*  
*Turdus merula*  
*Turdus philomelos*

#### Common Name

Meadow Pipit  
Tree Pipit  
Skylark  
Goldfinch  
Stock Dove  
Woodpigeon  
Carrion Crow  
Blue Tit  
Great Spotted Woodpecker  
Yellowhammer  
Robin  
Chaffinch  
Pied Wagtail  
Great Tit  
Coal Tit  
Pheasant  
Chiffchaff  
Willow Warbler  
Magpie  
Dunnock  
Starling  
Blackcap  
Whitethroat  
Wren  
Blackbird  
Song Thrush

### Mammals

*Lepus europaeus*  
*Meles meles*  
*Oryctolagus cuniculus*

Brown Hare  
Badger (Latrine and paw prints only)  
Rabbit





### APPENDIX 3 – PHOTOGRAPHIC RECORD



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Photograph 1 – Proposed Drill Site viewed from South-east Corner



Photograph 2 – Proposed Drill Site viewed from Mid-west Side



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Photograph 3 – Target Note 1



Photograph 4 – Target Note 2





Photograph 5 – Target Note 3

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Photograph 6 – Target Note 4 (Access Entry Point, Prior to Establishment of Current Temporary Access)



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Photograph 7 – Target Note 5



Photograph 8 – Target Note 6





Photograph 9 – Target Note 7



Photograph 10 – Target Note 8

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Photograph 11 – Target Note 9 with Proposed Drill Site Beyond

NIVE 2511  
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Photograph 12 – Scrub/woodland at edge of Ugglebarnby Moor





Photograph 13 – Unglebarnby Moor, Wet Heath Section

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