ECOLOGICAL SURVEY & PROTECTED SPECIES RISK ASSESSMENT
WIND TURBINE PROPOSAL
PULL HILL FARM
BARNSLEY

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ECOLOGICAL SURVEY & PROTECTED SPECIES RISK ASSESSMENT
WIND TURBINE PROPOSAL
PULL HILL FARM
RAG LANE
THURGOLAND
BARNSLEY
S35 7BA

GRID REF: SE 283 019

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EXECUTIVE SUMMARY

Naturally Wild have been instructed to undertake an Ecological Survey and Protected Species Risk Assessment on an agricultural field 580 m to the northwest of the village of Thurgoland, and c. 3 km to the east of Penistone. The application site is located within an agricultural field (1.5 ha), with Rag Lane (A629) to the west, which is currently used for arable purposes.

The proposed development is subject to a planning application (2012/0840) for the erection of a single wind turbine within the southwest corner of a medium sized agricultural field. The application includes the installation of the associated infrastructure, including ground works and grid connection.

The Local Planning Authority has requested that an ecology survey should be submitted in support of the planning application. As part of the planning process an ecological survey is required to determine if any European Protected Species and Habitats are likely to be affected by the proposed works, and to show how any negative ecological impacts would be mitigated and compensated.

The objective of the survey was to ascertain if any protected species may be using the site, document the habitats present and determine any potential ecological risks posed by the development during and post construction. The footprint of the proposed turbine and associated habitats were assessed, as were the immediate surrounding habitats. All survey and assessment work was completed in accordance with official assessment guidelines produced by Natural England and the Institute for Ecology and Environmental Management.

The proposed wind turbine will be located at Grid Reference SE 283 019 in the southwest corner of a medium sized arable field. Arable farmland and species-poor semi-improved grassland are the only habitats within a 100 m radius the turbine. There are no statutory or non-statutory sites on directly adjacent to the application site. The nearest habitat suitable for bat activity is located 109 m to the east.

An impact assessment was completed to assess how the proposed development would impact on protected habitats or species during the construction and operational phase.

For reasons discussed in the report it is not considered that the proposed turbine will have any significant impact on bat or any other protected species during the construction or operation phase, and in this respect there are no further habitat or species issues to consider and no requirement for additional ecological survey work in advance of the application being determined.

1 INTRODUCTION

1.1 Background

Naturally Wild have been instructed to undertake an Ecological Survey and Protected Species Risk Assessment on an agricultural field 580 m to the northwest of the village of Thurgoland, and c. 3 km to the east of Penistone. The application site is located within an agricultural field (1.5 ha), with Rag Lane (A629) to the west, which is currently used for arable purposes. The proposed development is subject to a planning application (2012/0840) for the erection of a single wind turbine within the southwest corner of a medium sized agricultural field (Grid Ref Point SE 283 019). The location of the proposed wind turbine is shown below in Figure 1. The Local Planning Authority (Barnsley Metropolitan Borough Council) has requested that an ecology survey should be submitted in support of the planning application (See Appendix 8.1 for full comments). Pull Hill Farm is located 280 m to the east of the application site.

As part of the planning process an ecological survey is required to determine if any European Protected Species and Habitats are likely to be affected by the proposed works, and to show how any negative ecological impacts would be mitigated and compensated.

Figure 1. The red point shows the location of the proposed turbine.

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1.2 Development Proposal

In overview, the development proposal is for the erection a 35.4 m high (hub) wind turbine within an existing agricultural field (arable), 280 m to the west of Pull Hill Farm. Further to this, the application includes the installation of the associated infrastructure, including base work to secure the turbine shaft and grid connection, which will link to an existing building to the northeast, as shown in Figure 9. The dimensions of the proposed wind turbine are shown below in Figure 2.

The proposed wind turbine would satisfy the energy demands of the farm by providing a source of renewable energy that would also allow the business to operate in a more environmentally and financially sustainable manner. Additional energy production would be sold back to the grid. The generated energy will feed directly onto the farm and will offset the energy requirements of the farm. The turbine would be positioned on land owned by and associated with Pull Hill Farm.

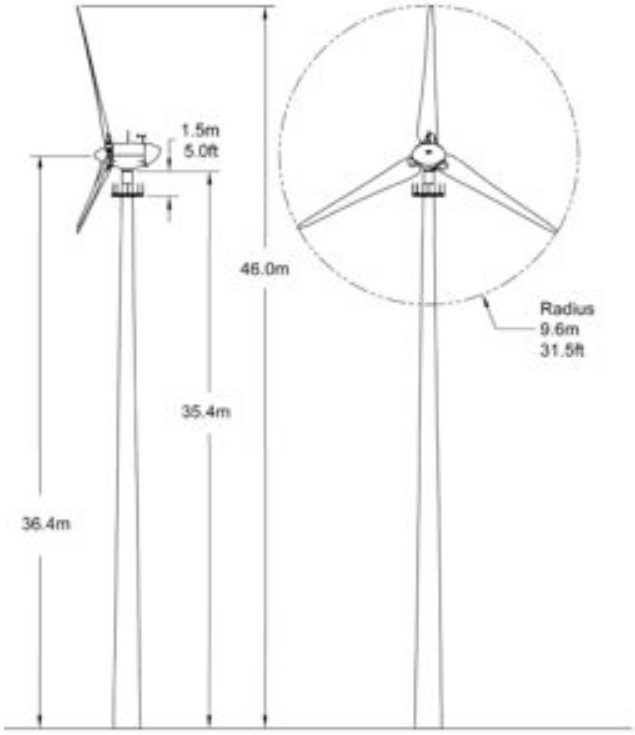

Figure 2: Elevation plan of the turbine.

1.3 Comments from the Planning Authority during the initial planning application.

As part of the planning application, which was submitted to Barnsley Metropolitan Borough Council (BMBC), comments were requested from Stephen Moralee (Assistant Director, Planning and Regulatory Services) on the proposed development. Following Stephen's assessment it was requested that a ecological survey was provided as part of the pre-validation application. Full comments from BMBC are presented in Appendix 8.1.

2 RELEVANT LEGISLATION

British wildlife is protected by a range of legislation, the most important being the Wildlife and Countryside Act 1981, the Conservation (Natural Habitats &c) Regulations 1994 and the Countryside Rights of Way Act 2000. The Wildlife and Countryside Act as amended mainly by the Countryside Rights of Way Act protects species listed in Schedules 5 and 8 of the Act (animals and plants respectively) from being killed, injured, and used for trade. For some species, such as Great Crested Newts and all bat species, the provisions of this act go further to protect animals from being disturbed or taken from the wild and protects aspects of their habitats. The act also stipulates that offences occur regardless of whether they were committed intentionally or recklessly. The parts of this legislation that apply to most reptile species are in regard to killing, injury and trade only and do not protect their habitat, nor are they protected from disturbance or from being taken from their habitat.

The Conservation (Natural Habitats &c) Regulations is the English enactment of European legislation and provides similar but subtly different protection for species listed on Schedules 2 and 4 of those regulations. A recent change in this legislation means that the provisions of this act now complement those of the Wildlife and Countryside Act more. Species to which these provisions apply are the European Protected Species. Activities that might cause offences to be committed can be legitimised by obtaining a licence from the relevant statutory body.

Birds receive protection under the Wildlife and Countryside Act also. It is an offence to intentionally or recklessly kill, injure or take any wild bird; take, damage or destroy a nest of a wild bird whilst it is in use or being built; or to take, damage or destroy an egg of a wild bird. The bird-nesting season is defined as being from 1st February until 31st August with exceptions and alterations for some species.

3 ECOLOGICAL SURVEY

3.1 Objective of Survey

The objective of the survey was to ascertain if any protected species may be using the site, document the habitats present and determine any potential ecological risks posed by the development during and post construction. The survey would include a desktop assessment, and bird and bat risk assessment, plus a daytime site assessment. The survey findings would be assessed in relation to the comments made by BMBC, and any statutory and non-statutory consultees. All findings will be assessed in relation to relevant policies, including ES12 – Effect on wildlife and ecology, Technical Information Note 051 and Technical Information Note 069, and the latest research into the impacts of wind turbines on ecology.

3.2 Survey Area

The footprint of the proposed turbine was assessed, as were the immediate surrounding habitats. The site proposed for development is located at Grid Reference SE 283 019 and is shown in Figure 1. The Full National Grid Reference Point for the turbine shaft is 428354.417, 401905.736. All habitats within 500 m of the site were assessed, with a particular emphasis on the 50 m and 100 m zones of influence, as shown in Figure 7.

3.3 Habitat Description

The development site is situated within a medium sized (1.5 ha) grassland field used for arable production. The proposed wind turbine will be located in the southwest corner of the field, as shown below in Figure 3. The site is located at an altitude of 230 m[1], and has a prominent westerly prevailing wind. The application field has an east-facing slope, with dry stonewalls, hedges and grass verges bordering the field on all sides. A very small stream runs south to north within the defunct hedgerow on the eastern boundary of the site. The application field opens out onto a larger semi-improved grassland field to the northeast. Pull Hill Farm, which includes a series of agricultural and residential units, is located 280 m to the east of the proposed turbine.

There are no statutory or non-statutory wildlife sites on or adjacent to the application site. The nearest protected site is Pye Flatts Meadows (SSSI), which is located 3.1 km to the north. Features of varying ecological value border the application field, with the distances between these features and the proposed turbine shown in Figure 6. There are no mature trees or buildings within the field where the turbine is proposed. The wider area is used largely for agricultural use, and is primarily focused on livestock and arable production. There are no ponds within 250 m of the application site. The A629 which links Thurgoland and Penistone runs 60 m to the southwest of the proposed turbine.

Figure 3: Position of the proposed turbine in relation to surrounding features (satellite image).

(Image taken from Google earth Pro: ©2010 Tele Atlas; ©2010 Infoterra Ltd & Bluesky).

3.4 Survey Constraints

There were no constraints with regards to the completion of the survey objectives.

[1] http://www.altitude.org/find_altitude.php

4 METHODOLOGY

The overall ecological assessment comprised two parts; a desktop study, and a bird and bat risk assessment. The desktop search collates all available public information regarding the biodiversity of the area, the habitat structure of the surrounding area and statutory and non-statutory designations. A detailed records search would be completed for the presence of protected species in the area using the National Biodiversity Network Gateway. The desktop survey also consisted of an assessment of the habitats on site using photographic records. The dominant vegetation structure was identified, allowing the habitats on site to be classified. The site and surrounding features were assessed for their potential value to protected habitats and species. Any trees of potential habitat importance would be noted. These activities were not limited solely to the site and the surrounding area was also investigated. Biological Records were requested from local bird surveyors.

It is generally understood that wind farm developments have a low impact on ecology in terms of land take, relative to the size of the development site. Impacts have been known to occur at some sites with birds and bats striking turbines during flight and bats being killed by barotrauma. The emphasis of the impact assessment will therefore be on the potential impact of the operational wind farm on birds and bats, particularly through blade strike. However, potential impacts throughout the construction and operation phases of the proposed wind turbine on other notable species will also be considered.

The 'Guidelines for Ecological Impact Assessment' (IEEM, 2006) (hereafter referred to as 'the IEEM Guidelines') provide guidance on the process of identifying the value of ecological receptors, characterising impacts upon them and assessing whether these impacts are significant. An ecologically significant impact is defined in the IEEM Guidelines as: '*an impact (negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area.*' The Guidelines focus on assessment of impacts at a variety of geographic scales and set out the following process for assessment:

- Identification of the nature conservation value of each ecological receptor that is present within the site and adjacent areas which may be affected by the development and the level of sensitivity of each of these receptors to the development;
- Identification of potential impacts, based on the nature of the construction, operation and decommissioning phases of the development;
- Determining the magnitude of potential impacts - i.e. the scale of the change in population/ number of individuals affected and the duration / reversibility of the potential impact;
- Determining the geographic level at which an impact will be significant, based on the interaction between the magnitude of the impact and the nature conservation value of the receptor likely to be affected;
- Identifying mitigation and, if required, compensation measures that are proposed to avoid, reduce or offset significant adverse impacts.
- Reduce or offset significant adverse impacts.

5 RESULTS

5.1 Desktop Study

The desktop study looked at current publically available data relating to protected species within the area and to local knowledge from past surveys undertaken by team members in the area. Naturally Wild have completed a search on the National Biological Network (NBN): Species that are relevant to this Ecological Survey, are noted at BAP 2007 species and have been recorded in SE20 are listed below.

5.1.1 National Biological Network – Gateway

Amphibian Species

Common Toad	(*Bufo bufo*)	
Great Crested Newt	*(Triturus cristatus)*	*> 1 km to the north*

Bird Species

Common Cuckoo	Eurasian Curlew
Eurasian Tree Sparrow	Common Grasshopper Warbler
Grey Partridge	House Sparrow
Lesser Redpoll	Northern Lapwing
Spotted Flycatcher	Hawfinch
Tree Pipit	Wood Warbler
Corn Crake	Greater Scaup
Reed Bunting	Ring Ouzel
Yellowhammer	Turtle Dove
Common Scoter	European nightjar
Motacilla flava subsp.	Red backed shrike

Reptile Species

Common Lizard	(*Zootoca vivipara*)
Adder	(*Vipera berus*)

Terrestrial Mammal

Brown Hare	(*Lepus europaeus*)	
West European Hedgehog	(*Erinaceus europaeus*)	
Eurasian Red Squirrel	(*Sciurus vulgaris*)	Most recent record 1971
European Otter	(*Lutra lutra*)	
European Water Vole	(*Arvicola amphibius*)	
Brown Long-eared Bat	(*Plecotus auritus*)	See Figure 12
Noctule Bat	(*Nyctalus noctula*)	See Figure 13
Polecat	(*Mustela putorius*)	
Soprano Pipistrelle Bat	(*Pipistrellus pygmaeus)*	See Figure 14

5.1.2 Statutory and non-statutory search

The following statutory and non-statutory designated sites were recorded within 7 km of the application site, and were considered relevant to this desktop survey. The Natural England Online Search tool was used as part of the desktop survey.

Site Designation	Site Code	Site Name	Area (ha)	Distance
Local Nature Reserves	1009900	Worborough Country Park	62.82	> 5 km to the northeast
	1009078	Potter Holes Plantation	8.66	> 5 km to the east
	1009580	Wharncliffe Heath	48.95	4 km to the south
	1083118	Town End Common	8.43	4.3 km to the south
	1008884	Elsecar Reservior	13.64	5 km to the east
Special Areas of Conservation	UK0030280	South Pennine Moors (The Dark Peak)	65025.5	>5 km to the southwest
Sites of Special Scientific Interest	1004074	Pye Flatts Meadows	2.2	3.1 km to the north
	1002023	The Dark Peak	31823.79	> 5 km to southwest
	1004022	Wharncliffe Crags	15.6	4 km to the south
	1021402	Canyards Hills Heather and bilberry heath	30	c. 6 km to the southwest
	1084114	Spring Meadows, Alderman's Head & Cow Croft Meadows	16.83	3.2 km to the west

Table 1: Relevant statutory and non-statutory designated sites within 10 km of the application site.

5.1.3 Biological Records Search

Not completed as part of the initial phase 1 and protected species risk assessment.

5.1.4 Liaison with Relevant Parties

Not completed as part of the initial phase 1 and protected species risk assessment.

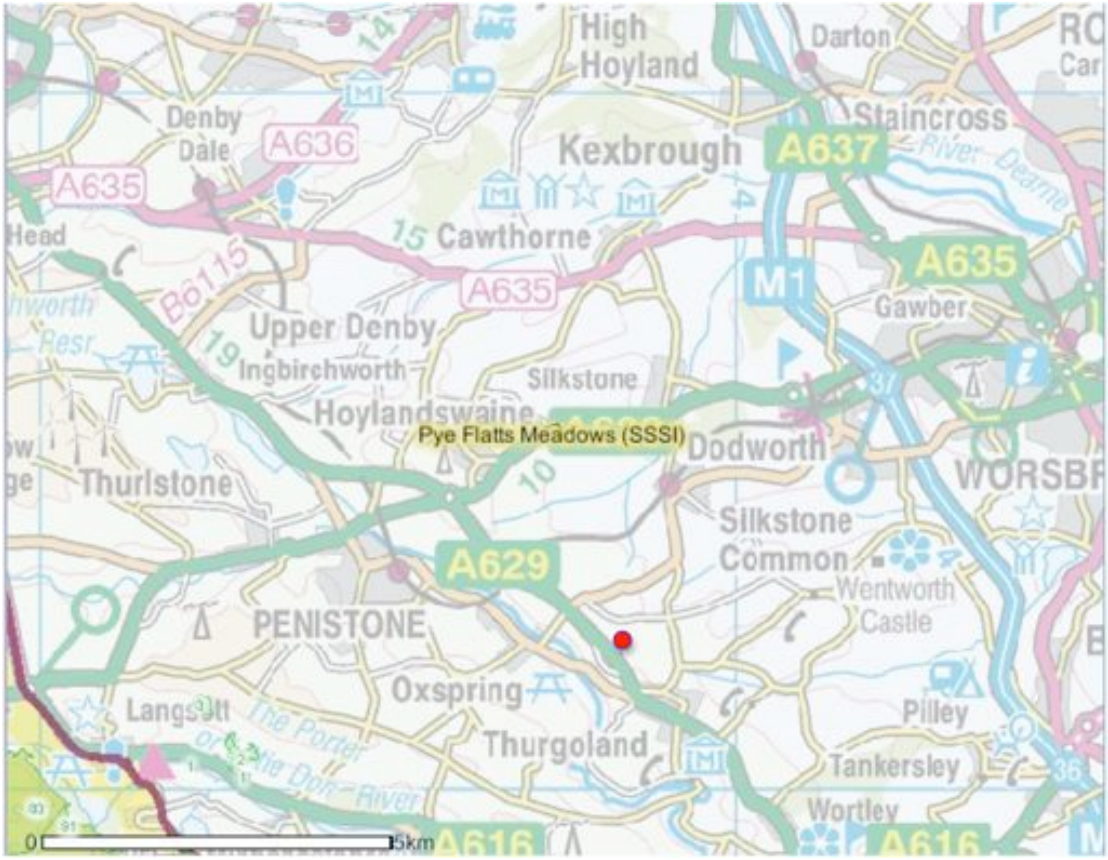

Figure 4: Statutory and non-statutory sites surrounding the application site[2].

5.2 Site Assessment

Naturally Wild staff who have been fully trained in ecological surveying, assessment and mitigation techniques completed a site assessment on August 2012, following the desktop survey which used satellite images and data resources. The assessment determined the overall characteristics of the site, and it's potential value of all habitats for European Protected Species. All survey and assessment work was completed in line with official assessment guidelines produced by Natural England and the Institute for Ecology and Environmental Management.

Desktop and site survey work was completed by Ecologist Thomas McQuillan (BSc Hons Environmental Sciences, AIEEM). Graeme Skinner (Bat licensed 201221937) has reviewed this document and the survey findings. Both surveyors have completed numerous wind turbine ecological assessments in the past 2 years, and are experienced in bat & bird survey work. Additional information on the staff members who completed this ecological report are presented in Appendix 8.2.

The site assessment was completed on Thursday 23rd August under suitable weather conditions.

[2] http://www.natureonthemap.naturalengland.org.uk/map.aspx?m=nreserves. © Crown Copyright and database right 2012. Ordnance Survey Licence number 100022021. © Crown copyright. Licence number 100022432.

5.2.1 On Site Ecological Features

The location of the proposed turbine is situated within a medium sized (1.5 ha) agricultural field used for arable production. The proposed wind turbine will be located in the southwest corner of the field, as shown in Figures 1 & 3. The site is located at an altitude of 230 m, and has a westerly prevailing wind. The application field has a east-facing slope, with dry stonewalls, hedges, and grass verges bordering the field on all sides.

Arable farmland is the only habitat on, and within 23 m of the proposed turbine. At the time of site survey, in August 2012, the field contained bare soil with no current crop. In recent years this field has contained a grass crop and used for silage production and livestock grazing.

There are no statutory or non-statutory wildlife sites on or directly adjacent to the application site. Features of varying ecological value border the application field, with the distances between these features and the proposed turbine shown in Figure 6. There are no mature trees within the field where the turbine is proposed, although there are several semi-mature deciduous trees along the eastern boundary of the application field within the defunct hedgerow. Arable farmland was the only habitat recorded at the position of the proposed turbine or location of the associated grid connection. This habitat type was considered to be of insignificant ecological importance, and as having no value to any protected species. The grid connection will pass through arable field to the east (Figure 9).

The application field is managed on a rotational basis arable and grass crop production. The proposed development will cause the loss of a small area of arable farmland habitat during the construction of the base work for the turbine. This habitat type is not considered to be under threat or of any specific value to protected species, and furthermore is abundant in the area surrounding the site. Consequently, it is not considered that the loss of a small area of this habitat type will have any ecological significance in a local or wider context. As there are no statutory or non-statutory wildlife sites on or directly adjacent to the application plot it is not deliberated that the construction of the turbine will have any direct impact on protected sites. Under the current development proposal, for reasons discussed above, it is not considered that the installation process of the proposed turbine and grid connection will have any significant direct or indirect impact on any protected species or habitats.

5.2.2 Off Site Ecological Features

A detailed assessment was undertaken to identify any potential ecological impacts that may result on protected species or habitats surrounding the application site as a consequence of the proposed development. The wider area is used largely for agricultural production, and is primarily livestock focused, although several of the surrounding fields are used for arable production (Figures 3 & 8). The arable field, where the turbine is proposed to be located is bordered to the east by an old defunct hedgerow, with semi-improved grassland beyond this. A dry stonewall borders the application field to the south with agricultural land (cattle grazed semi-improved grassland) and the A629 beyond this. A dry stonewall borders the arable field to the west with further arable farmland beyond this. The northern boundary of the application field includes a mixture low value hedgerow, grass verge and occasional semi-mature trees, with arable land beyond this.

Pull Hill Farm, which includes a series of agricultural and residential buildings (several Listed units) and associated outbuildings, is situated 280 m to the east. The site is accessed by an agricultural road, which links up with the A629 to the south. It is understood that the grid connection will pass only through agricultural land, on towards Pull Hill Farm.

None of the sites of ecological importance (Table 1) in the surrounding area are considered to have any significant interaction with the development site at a habitat level. The nearest protected site is Pye Flatt Meadows (SSSI), which is located 3.1 m to the north. The importance of this site (Pye Flatt Meadows) relates to the Neutral grassland – lowland habitat type. The site covers 2.2 ha and is in a favourable condition. This site has a 70% wildflower cover, and is managed under Higher Level Stewardship. It is not considered that the habitats on this site have any interaction or dependency with those habitats on and directly surrounding the application site. The proposed turbine would not directly impact this designation as no excavations are proposed within the confines of the SSSI. Furthermore the designation relates principally to the sites flora rather than any fauna consideration.

Agricultural fields in the wider area are of a similar size and design to the application site (mixture of livestock production: cattle & sheep, and arable use), and are primarily bordered by dry stonewalls. The nearest ecological feature to the proposed turbine (Figure 6), apart from arable farmland and semi-improved grassland, are the 3-4ft dry stonewalls 28 m to the south and 23 m to the west. The nearest natural feature with the exception of agricultural land and dry stonewalls is a semi-mature tree 109 m to the west and the woodland copse 131 m to the southwest. The desktop data search detailed no records of any protected species or habitats on or adjacent to the application site (Figure 4, and section 5.1). The habitat types recorded on and around the application site have been mapped, and are presented in Figure 5. In conclusion, the habitats on and directly surrounding (< 109 m) the proposed turbine were not considered to be of significant value to protected species. Also no trees or hedgerows will be impacted during the installation process, and the nearest mature tree is located > 100 m to the east. The grazed (cattle) semi-improved grassland fields to the south and east are likely to subject to fertilizer application, which would further reduce any botanical value.

Features of varying ecological value border the application field, with the distances between these features and the proposed turbine shown in Figure 6. There are no mature trees or buildings within the field where the turbine is proposed. The wider area is used largely for agricultural use, and is primarily a mixture of livestock and arable. There are no ponds within 250 m of the application site, with the nearest pond being 255m to the southwest adjacent to the A629. The nearest large area of mature woodland is located 339 m to the north of the proposed turbine.

No significant ecological impact is anticipated on the habitats (arable farmland, hedgerows, semi-mature trees & grass verges) surrounding the application site during the construction or operational phase of the wind turbine. The application site does not appear to form part of a biodiversity corridor in a wider context and is considered relatively isolated from an ecological perspective (turbine will be positioned in an arable field). There are no statutory or non-statutory wildlife sites on or adjacent to the application site, and no such sites within a 2 km radius of the site; therefore, it is not considered that the proposed development will have any direct impact on such sites in the wider area.

5.3 Protected Species

Great crested newts: There are no records of great crested newts within 500 m of the application site (NBN Gateway records). Amphibian access onto the site is limited to a certain degree by surrounding roads and dry stonewalls, and the application site itself was considered to hold low value GCN terrestrial habitat (arable farmland). As such no impact to GCN is considered likely under the development proposal. There are no ponds within 250 m of the application site, with the nearest pond being located 255 m to the southwest.

Badgers: There is no habitat considered suitable for a badger sett within 250 m of the proposed application site. Overall, whilst badgers may use the vegetation strips and hedgerows in the wider area for movement and foraging it is not anticipated that the erection of a single turbine will have any impact on badger activity on site, during or post completion. No evidence of badger activity was recorded during the site assessment.

Reptiles: With the majority of the habitats surrounding the application site managed for the purpose of agriculture (semi-improved grassland and arable farmland), they are deemed unsuitable for reptile use. Adders and common lizards were the only species identified during the desktop research and the application site (arable farmland) was considered of very limited value to these species. With the habitats on the application site considered to be of negligible value to reptile species, no risk is anticipated to reptile populations during the construction phase. The records of reptile species within SE20 are focused 5 km to the southwest on The Dark Peak (SAC & SSSI).

Birds: The habitats surrounding the application site (arable farmland and semi-improved grassland) are considered in general terms to be of low value for bird species. There are no large areas of open water, marsh or bog habitat suitable for birds within 4 km of the application site. There are no protected bird sites within surrounding area, and Pye Flatts Meadows (SSSI) is not noted for its value to bird species. The mature hedgerow and woodland, > 109 m from the proposed turbine, is likely to be of low-moderate

value to smaller bird species, notably passerine species; and was considered of minimal value to owl and raptor species due to a grazed understory. The arable application field itself was also considered of negligible value to raptor and owl species. It is not considered that the development site holds any value for upland bird species. The site is in an intensive agricultural location, which does not contain any prominent natural features, and therefore is not considered to be located within a significant bird movement corridor. South Pennine Moors (SAC) and The Dark Peak (SSSI) are known to be of particular importance to upland bird species, however as this site is located over 5 km to the southwest, and there are no prominent links between these areas no impact is envisaged.

Agricultural bird species, such as lapwing and skylark, are likely to be present within the surrounding area, however the habitats on the application site were not considered to be of any significant value to these species. With the habitats on and surrounding the application site being used primarily for intensive agricultural purposes, and as there are no habitats of significant bird importance in the local area, it is not considered that the proposed turbine will have any dispersal impact on bird species. Wildfowl and waders are the most common bird groups that are susceptible to displacement disturbance, and as there are no suitable habitats surrounding the application site for these species no significant impact is envisaged. The nearest large area of open water is Underbank Reservoir c. 4 km to the southwest. Although there are no known flight paths near the application site should birds commute over/near to the proposed turbine any impact would be negligible as birds generally commute at a much greater height than 46 m. Having assessed the presence of other turbines in the area, no cumulative impact is predicted. There is a small turbine to the southeast of Pull Hill Farm, however it is not considered that the proposed turbine will have any cumulative impact in addition to the current turbine. In the wider area there is a large wind farm 8.1 km to the northeast.

Raptor and owl species are understood to be at particular risk to collision impacts with turbines, however with the habitats within 109 m of the proposed turbine being of negligible value to hunting raptor and owl species (improved grassland and arable farmland) no significant impact is envisaged. The grass verge parallel to the dry stonewalls were of limited size and were considered of negligible value to foraging owl and raptor species. The closest area of potential foraging habitat is located at least 109 m from the proposed turbine, and as such no collision impact is envisaged. Further to this, owl species are likely to commute and forage at a height below the tips of the turbine blades (below 26 m). Little owl, tawny owl, sparrowhawk and kestrel would be expected in the wider area.

The majority of the bird species using the habitats, notably the grassed strips, field margins and partial hedgerows, surrounding the application site will be smaller and more agile (sparrows and finches), and the RSPB generally consider that such species are better equipped to avoid collision. Therefore, it is not considered that there will be any significant collision issues regarding bird species and the proposed turbine. Due to the small scale of the proposed development (one turbine), the proposed location (grazed field), the land management (intensive agriculture), and the open, exposed and isolated location it is not considered that the wind turbine will have any significant impact on bird species during the operational phase. As the predicted risk for impact on bird populations is low it is not considered necessary for additional survey work.

Bats: The arable farmland habitat on and around the application site is considered to be of negligible value to foraging or commuting bats, and furthermore is in an exposed and open position, which does not provide a link between suitable bat habitats. The turbine will be located on the top of the hill at an altitude of 230 m, and such conditions make this position unsuitable for bat activity. The nearest habitat considered of potential value for bat activity is the mature defunct hedgerow and woodland copse > 109m to the east/southeast. With the nearest potential foraging habitat over 109 m from the proposed turbine under current guidance no impact on bat species is predicted[3]. The analysis of the application site and surrounding areas strongly suggests that the position of the proposed turbine is not located within or near to a bat movement corridor, or where bats are likely to forage. Any bat activity would be expected to be present to the east, where a mature hedgerow and small stream links the woodland copse to the southeast with the mature woodland to the northeast. Furthermore, Pull Hill Farm is located just beyond this feature and this area provides a range of potential roosting and foraging points. The focal habitat within a 109m radius of the application site is arable farmland and grazed semi-improved grassland. Dry stonewalls are located c. 25 m to the south and west of the proposed turbine (Figure 6), however for the following reasons these features were not considered to be of any value to bat activity; in an exposed position, did not link any suitable foraging habitat, where not prominent features (3-4 ft high) and did not contain any associated vegetation.

To conclude, none of the habitats within 109 m of the proposed turbine are considered of any significant value to bats, and furthermore the focus of the habitats deemed suitable for bat use are > 109 m to the east. In overview, it is not considered that the habitats within a 109 m radius of the proposed turbine hold any significant value to bat activity.

Pull Hill Farm, which is located 280 m to the northeast of the application site was considered to be potential value to roosting bats (some brick built units with tiled roofs), however the majority of the buildings were of corrugated sheet construction and were therefore considered of negligible value to roosting bats. There is ample foraging habitat in the area to the south of the farmstead, and as the position of the proposed turbine is >280 m from the farm and the linking habitats are poor no risk is anticipated. There are no mature trees within 100 m of the application site.

The exposed positioning and openness of the habitats on the application site (grassland field) would not be preferable for bat foraging or commuting behaviour. In the wider area there is ample commuting, foraging and roosting habitat notably to the northeast and southeast of the application site, with these areas linked by a mature hedgerow and stream. UK bat species, especially *Pipistrelle* bats, are known to prefer to remain close to habitat features when commuting[4], therefore it is highly unlikely that the proposed turbine will impact commuting bats as the nearest potential commuting feature is > 109 m from the turbine. Bat species known to be present within the area include primarily pipistrelle and to a lesser extent brown long-eared. Under the risk assessment tool (Produced by Natural England) for assessing the potential impact of wind turbines on bat species pipistrelle are classified as a medium risk. Pipistrelle

[3] Technical Information Note TIN051, in light of the Eurobats Agreement, entitled 'Bats and Onshore Wind turbines' produced by Natural England
[4] Technical Information Note TIN051: 'Bats and Onshore Wind turbines' produced by Natural England

bats are the most common bat in the local area, and forage in a range of habitats including farmland, woodland and large hedgerows. Pipistrelle bats forage and commute at a height of between 5-10 m[5], and as the turbine blades will be located at a height of 27 m, at the lowest point, the possibility of collision is unlikely. Under the current guidance *Myotis* species are considered low risk to impacts from wind turbines. The risk associated to bats as a consequence of the development proposal is low for the following reasons: the site is small (1 turbine), in a windy exposed position, at a high altitude, in a large agricultural field and there is no suitable foraging, commuting or roosting habitat within 109 m of the turbine. As the predicted risk for impact on bat populations is low it is not considered necessary for additional survey work.

The assessment of how the proposed wind turbine may affect bat populations was undertaken in line with the Technical Information Note TIN051, in light of the Eurobats Agreement, entitled 'Bats and Onshore Wind turbines' produced by Natural England. This report summaries that potential impacts on bats as a consequence of wind turbines are unlikely should a 50 m buffer area be present from foraging habitat. In the case, of the proposed development the nearest area of suitable bat foraging habitat is located > 109 m from each of the proposed turbine. Therefore, for reasons discussed and under the risk assessment guidelines set by Natural England, no significant risk on bat populations is anticipated during the operational phase of the turbine, and it is not considered that the proposed development will impact the favorable status of bat populations in with local and wider context.

Other species: In addition, there is no evidence to indicate that the following protected species will be impacted by the proposed turbine during the operational or construction phase: polecat, red squirrel, water vole, otter and brown hare. Although habitats in the surrounding area may be of value to such species the application itself is not, and therefore no impact is envisaged.

[5] http://www.bio.bris.ac.uk/research/bats/britishbats/batpages/commonpipi.htm

5.4 Phase 1 Habitat Map

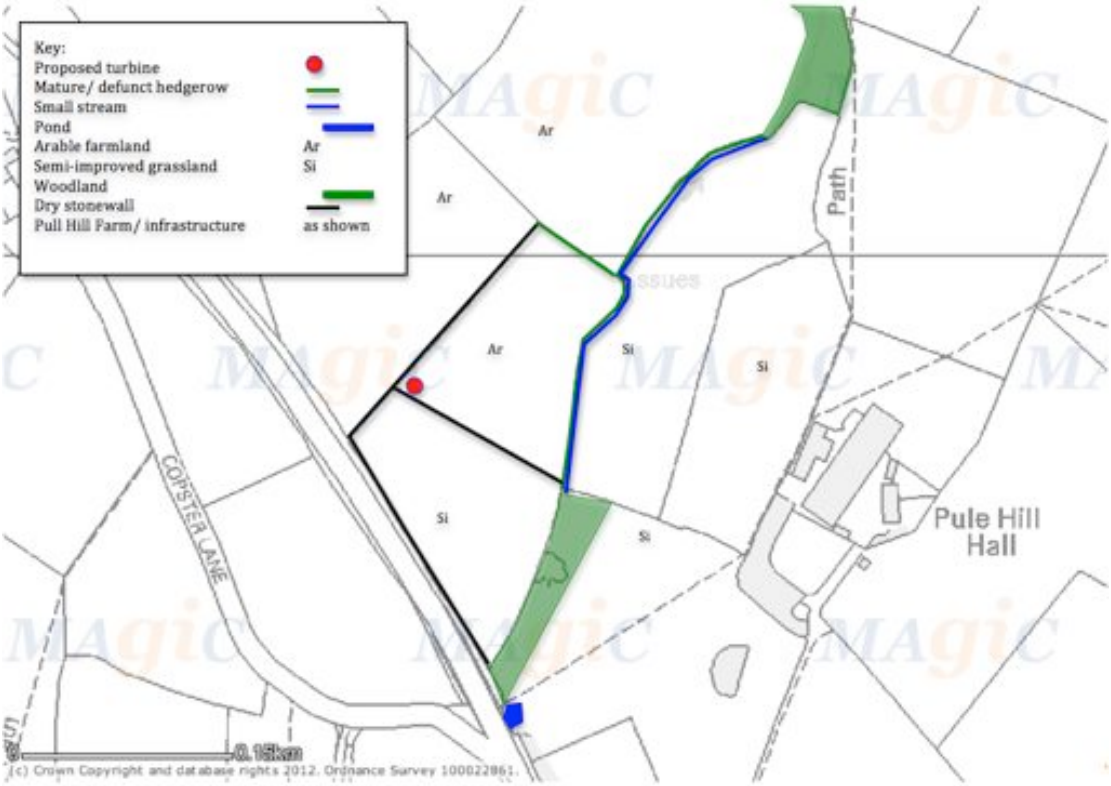

Figure 5: Phase 1 Habitat Survey Findings.

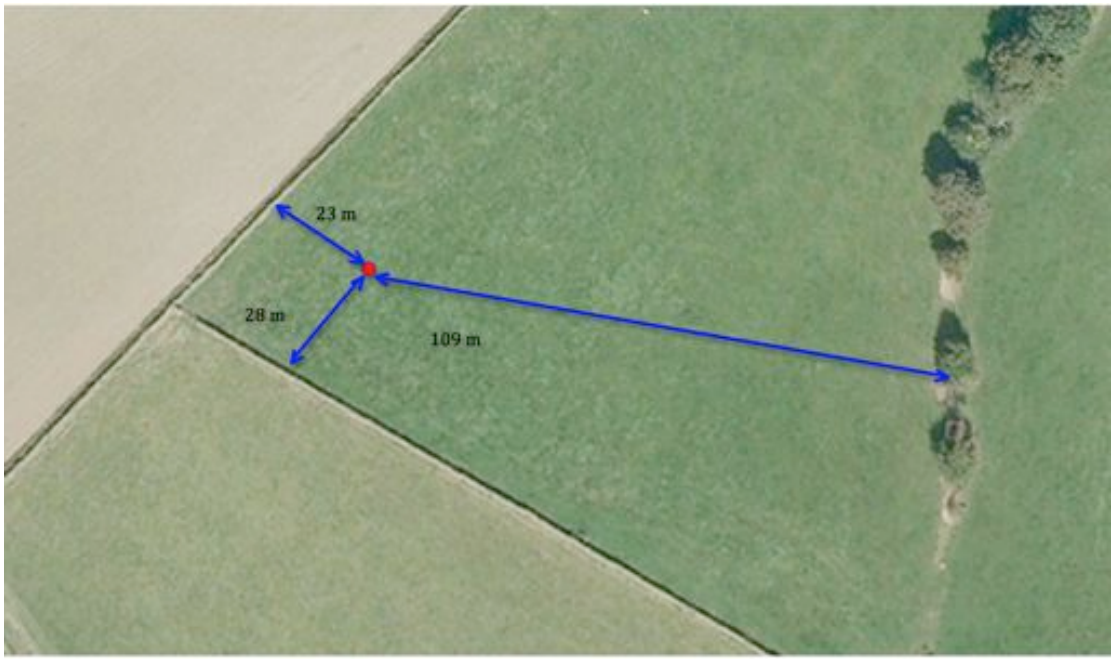

Figure 6: Showing the location of ecological features in relation to the development site.

Figure 7: Turbine position and also showing 50m radius lines.

6 EVALUATION & RECOMMENDATIONS

For reasons discussed in the report it is not considered that the proposed turbine will have any significant impact on protected species or sites during the construction or operation phase and in this respect there are no further habitat or species issues to consider and no requirement for additional ecological survey work in advance of the application being determined.

7 SITE IMAGES AND FIGURES

7.1 Site Images

Image 1: Applications site, looking west.

Image 2: Western boundary of the application site, looking south.

Image 3: Defunct hedgerow and matures trees to the east of the application site.

Image 4: The application site looking north.

Image 5: View looking south towards the application site.

Image 6: Looking across the application site, in a northeast direction.

Image 7: A629 to the south.

Image 8: Arable field to the north.

7.2 Additional Figures

Figure 8: Application site: 2km surrounding area.

Figure 9: Showing the location of the proposed turbine and grid connection (red line).

Figure 10: Showing additional protected areas within 10km of the site[6].

Figure 11: Showing additional protected areas within the wider area[7].

[6] http://www.natureonthemap.naturalengland.org.uk/map.aspx?m=nreserves

8 APPENDIX

8.1 Comments from Barnsley Metropolitan Borough Council

BARNSLEY
Metropolitan Borough Council

Planning and Regulatory Services
Assistant Director: Stephen Moralee BA (Hons) MBA
P.O. Box 604, Barnsley S70 9FE

Earthmill Ltd
Equinox 3
Audby Lane
Wetherby
North Yorkshire
LS22 7RD
United Kingdom

My ref: DM/IT
Your ref:
Enquiries to: Magnus Cooke
Email: developmentmanagement@barnsley.gov.uk
Dial Direct: (01226) 772582
Fax: (01226) 772591
Date: 1 August 2012

Dear Sir/Madam

APPLICATION NO: 2012/0840/INVALID
DESCRIPTION: Erection of 1 no. 36.4m (high) hub wind turbine.
LOCATION: Land at Pule Hill Farm, Rag Lane, Thurgoland, Sheffield, S35 7BA

Thank you for your planning application in respect of the above. Unfortunately, your application is invalid and cannot be processed because:-

Please provide a background Noise Assessment from noise sensitive locations specific to the application.

Please provide an Ecology Survey of the site.

The Access Route showing on scale map 1:2500 does not link up to the turbines location.

Please attach these documents to this letter and return to the above address as soon as possible, to enable us to process your application. If you require assistance or have any queries please telephone the officer named above.

NB: If you are sending an additional fee only please attach to this letter and return, do not send cheques without a covering letter, remembering to quote the relevant application number.

Yours faithfully

Stephen Moralee

Assistant Director, Planning and Regulatory Services

Development Management Head of Planning: Tim Cliffe BSc MRICS
www.barnsley.gov.uk/developmentmanagement

CUSTOMER SERVICE EXCELLENCE CSE

[7] http://www.natureonthemap.naturalengland.org.uk/map.aspx?m=nreserves

8.2 Qualifications and Experience of Ecologists

Thomas McQuillan

Thomas McQuillan holds a 2:1 BSc Hons degree in Environmental Sciences from the University of York (Graduated 2009), and is also an Associate Member of the Institute for Ecology and Environmental Management. He has been working as a Ecological Consultant for nearly 3 years and has within this time completed the following:

Numerous Phase 1 Habitat Surveys on a range of sites and habitat types.

- Protected species survey work (bats, great crested newts, birds, badgers etc). Including investigations into suitable bat movement and foraging features, potential roosting habitat, and presence risk assessments; and breeding and movement bird surveys.
- Thomas has completed over 25 single/ double wind turbine risk assessments and additional protected species surveys (birds & bats). The majority of these surveys have been completed in the north of England on turbines with a tip height of between 15 and 50m.
- Thomas is a member of the North Yorkshire Bat Group, and regularly discusses the findings of the latest survey work relating to impacts on species from small wind turbines. The most recent conversation Thomas had was with Kirsty Park at Stirling University regarding her paper on the impact of small turbines on bat populations, and the need for a buffer zone.
- Thomas is also experienced in large scale Environmental Impact Assessments (EIA) and the risk and survey work involved in these documents.
- Thomas is dedicated to ensure that his ecological survey work is in full accordance with current guidance and legislation, notably; TIN051 & TIN069.

Graeme Skinner

Graeme Skinner has 15 years experience of ecological consultancy and has completed numerous wind turbine ecological assessments in recent years (over 25 single and duel turbine proposals). Graeme is the Managing Director of Naturally Wild and holds the post of Principal Ecologist. He holds a survey licence for bats and great crested newts, and has held many EPS Development Licenses. Graeme also holds a survey licence for smooth snakes, sand lizards and natterjack toads. Graeme and Thomas work closely on these projects to ensure the risk category is appropriately considered and documented.

8.3 NBN Gateway Bat Records & Mapped Biological Records Data

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Figure 12: Records of Brown Long-eared Bat

Figure 13: Records of Noctule Bat.

Figure 14: Records of Soprano Pipistrelle Bat.