date: 6 September 2012

your reference:

our reference:

ask for: Chris Crew

email: ccrew@sholland.gov.uk

FILE COPY

Council Offices
Priory Road
Spalding
Lincolnshire PE11 2XE

tel: 01775 761161
fax: 01775 711253
www.sholland.gov.uk

Mr C Maltby – Planning Officer
Holbeach and District Civic Society
Broadgate House
Gedney Broadgate
Spalding
Lincs PE12 0DE

Dear Mr Maltby

Holbeach St Marks Wind Farm Scoping Report

I am writing to inform you of a proposal to develop a 12 turbine (maximum capacity 36 MW) windfarm development near Holbeach St Marks, Lincolnshire. As the development falls within Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 an environmental impact assessment (EIA) will be prepared and a request for a scoping opinion has been submitted to South Holland District Council.

As a result, we are undertaking a wider consultation exercise in order to:

(i) identify any additional key issues arising from the proposals;
(ii) agree the methods by which the impact of the development will be assessed in the EIA;
(iii) define any scope for mitigation of these potential impacts; and
(iv) gather any data or information that would help to inform the EIA process.

I have attached a copy of the scoping report for the proposed windfarm, and would be grateful if you could consider the relevant sections and provide any comments in relation to points (i) to (iv) above by 27 September 2012.

Yours sincerely

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

date: 04 October 2012
your reference:
our reference:
ask for: Mr Chris Crew
email: ccrew@sholland.gov.uk

Clare Dance
Arcus Renewable Energy Consulting Ltd
2F Swinegate Court East
3 Swinegate
York
YO1 8AJ

Council Offices
Priory Road
Spalding
Lincolnshire PE11 2XE

tel: 01775 761161
fax: 01775 710772
www.sholland.gov.uk

Dear Ms Dance

Request for a Scoping Opinion for the proposed Holbeach St Marks Wind Farm (near Holbeach), South Holland, Lincolnshire

I write further to your letter and enclosures dated 09 July 2012. My apologies for the delayed response.

The submitted scoping report has been considered having regard to the specific characteristics of the development and the environmental features likely to be affected by the proposal. In accordance with the EIA Regulations a consultation exercise has been carried out. For the sake of completeness I enclose copies of all the response received, some of which may be duplicates of response you have received following your own consultation exercise. Should I receive any further consultation responses I will of course forward those on to you.

It is the opinion of the Local Planning Authority that the key issues have been identified and will no doubt be expanded upon during preparation of the EIA. Finally you are reminded that this response does not preclude the Authority from requesting further information at a later stage should the need arise.

Yours sincerely

Chris Crew
Principal Planning Officer

2F Swinegate Court East
3 Swinegate
York YO1 8AJ
T 01904 715 470
F 01904 655 831
E info@arcusrenewables.co.uk
W www.arcusrenewables.co.uk

3/9/12
Spoke to Clare Dance
Explained my mistake in interpreting this letter & prev. discussions as part of informal pre-app process. Have realised that as formal request for Scoping Opinion we, as LPA, are required to carry out formal consultation. This will delay our response by 3-4 weeks.
CC

Mr Chris Crew
South Holland District Council
Council Offices
Priory Road
Spalding
Lincolnshire
PE11 2XE

9th July 2012

Our Ref: 940/001/SCOP

Dear Mr Crew

Request for a Scoping Opinion for the proposed Holbeach St Marks Wind Farm (near Holbeach), South Holland, Lincolnshire.

Infinis is proposing to develop a wind farm on land to the north of Holbeach St Marks ("the proposed development"), approximately 8 kilometres (km) north of Holbeach, South Holland, Lincolnshire. It is intended to carry out an Environmental Impact Assessment (EIA) of the proposal in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 for developments of this nature.

The enclosed Scoping Report describes the proposal and has been written with a view to providing a structure for the consultation on the approach to the EIA and content of the Environmental Statement. **Arcus Renewable Energy Consulting Ltd ('Arcus'), on behalf of Infinis, hereby requests a Scoping Opinion from South Holland District Council with regard to the information to be provided in the Environmental Statement.**

As agreed, Arcus, on behalf of Infinis, is issuing this Scoping Report to the consultee organisations listed in Appendix 1 of the enclosed report. Responses will be sent to Arcus, who will forward copies to South Holland District Council. Comments are specifically invited on:

- The proposed content of the ES;
- The proposed assessment methods;
- Any information your organisation may hold which would inform the assessment; and
- Any additional consultees who should be contacted.

We have requested consultation responses by letter or email by the 7th August 2012, in order that consultee comments can be taken into consideration by South Holland District Council when formulating your Scoping Opinion, as required. Please do not hesitate to contact us should you require additional copies of the report (either printed copies or electronic copies) or wish to discuss any aspect of the proposal in more detail.

Yours sincerely,

C. Dance

Clare Dance

EIA Project Manager
Arcus Renewable Energy Consulting Ltd, on behalf of Infinis

Crew, Chris

From: Crew, Chris
Sent: 06 September 2012 10:19
To: _planningadvice
Subject: Scoping Report - Proposed wind farm, Holbeach St Marks

Attachments: Holbeach St Marks Wind Farm Scoping Report July 2012v3.pdf

Holbeach St Marks
Wind Farm Sc...

Please send copy of my email below and attached document to the following list of consultees:

Environment Agency
English Heritage
Ancient Monuments Society
Anglian Water Services
National Grid
MoD
Civil Aviation Authority
CPRE
Kings Lynn & West Norfolk Council
Boston Borough Council
RSPB
Lincolnshire Wildlife Trust
Arquiva (National Grid Wireless)
Natural England
British Trust for Ornithology
Lincolnshire Bat Group
British Telecom
Clerks to Holbeach, Moulton, Whaplode and Gedney Parish Councils Ward Members to Holbeach, Moulton, Whaplode and Gedney SHDC Environmental Protection (Noise) SHDC Landscape Consultant Jon Sharpe (LCC Highways) Rights of Way Officer Fenland Aero Club Holbeach Civic Society Arcus Renewables Consulting Ltd, clared@arcusrenewables.co.uk (agents acting for the developer)

Dear Sir/Madam

I am writing to inform you of a proposal to develop a 12 turbine (maximum capacity 36 MW) windfarm development near Holbeach St Marks, Lincolnshire. As the development falls within Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 an environmental impact assessment (EIA) will be prepared and a request for a scoping opinion has been submitted to South Holland District Council.

As a result, we are undertaking a wider consultation exercise in order to:

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(ii) agree the methods by which the impact of the development will be assessed in the EIA;
(iii) define any scope for mitigation of these potential impacts; and
(iv) gather any data or information that would help to inform the EIA process.

I have attached a copy of the scoping report for the proposed windfarm, which I am aware some consultees may have already received direct from the proposer. I would be grateful if you could consider the relevant sections and provide any comments in relation to points (i) to (iv) above by 27 September 2012.

Yours faithfully

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

Crew, Chris

From: Seymour, Sarah
Sent: 06 September 2012 14:13
To: Crew, Chris
Subject: FW: Scoping Report - Proposed wind farm, Holbeach St Marks

-----Original Message-----
From: Seymour, Sarah
Sent: 06 September 2012 14:10
To: 'Rosie Dixon'
Subject: RE: Scoping Report - Proposed wind farm, Holbeach St Marks

Dear Rosie Dixon

Many thanks for your response I will remove your details. We await details from the replacement primary contact for CPRE.

Yours sincerely

Planning Admin

-----Original Message-----
From: Rosie Dixon [mailto:RosemaryD@cpre.org.uk]
Sent: 06 September 2012 12:51
To: Seymour, Sarah
Subject: RE: Scoping Report - Proposed wind farm, Holbeach St Marks

Dear Sarah,

I understand that you'll have been given my email address as a substitute for a CPRE Lincolnshire contact as they have recently gone through several changes and had yet to establish a new public contact.

I advised the gentleman who wrote that for any major developments they should in the meantime feel free to contact our planning team and gave details for them. Please remove me from your lists as I am not the correct person for such an enquiry. Many thanks.

I've just an hour ago heard that the person who I expect will become the Lincolnshire branch's primary contact has returned from leave. I will forward this to him and ask him to get in touch with you directly with his details.

Kindest regards,

Rosie

Rosie Dixon
Branch Development and Events Assistant
Tel: 0207 981 2846

-----Original Message-----
From: Seymour, Sarah [mailto:SSeymour@sholland.gov.uk]
Sent: 06 September 2012 12:05
To: PlannL.Lincoln2.AN@environment-agency.gov.uk; e-emids@english-heritage.org.uk; office@ancientmonumentssociety.org.uk; planningliaison@anglianwater.co.uk; plantprotection@uk.ngrid.com; DIO-Safeguarding-Wind@mod.uk; windfarms@caa.co.uk; Rosie Dixon; contact@west-norfolk.gov.uk; info@boston.gov.uk; mike.jones@RSPB.org.uk; info@lincstrust.co.uk; saleem.shamach@arqiva.com; consultations@naturalengland.org.uk; info@bto.org; annettefaulkner@btinternet.com; holbeachpc@btconnect.com; clerk.moulton@gmail.com; granhawk@fsmail.net; the.clerk@btinternet.com; Biggadike, Francis Cllr; Howard, Martin; Rudkin, Rita Cllr; Grocock,Rodney Cllr; Casson, Anthony Cllr; Woolf, Andrew Cllr; Chandler, Malcolm Cllr; Creese, Robert Cllr; Wilkinson, Sarah; pollution;

Oliver, Ian; jon.sharpe@lincolnshire.gov.uk; LCCHighwaysSouth@lincolnshire.gov.uk; fsasecretary@fenlandairfield.co.uk; clared@arcusrenewables.co.uk
Subject: Scoping Report - Proposed wind farm, Holbeach St Marks

Dear Sir/Madam

I am writing to inform you of a proposal to develop a 12 turbine (maximum capacity 36 MW) windfarm development near Holbeach St Marks, Lincolnshire. As the development falls within Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 an environmental impact assessment (EIA) will be prepared and a request for a scoping opinion has been submitted to South Holland District Council.

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Yours faithfully

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

Crew, Chris

From: Seymour, Sarah
Sent: 10 September 2012 10:09
To: Crew, Chris
Subject: FW: Scoping Report - Proposed wind farm, Holbeach St Marks

Attachments: Holbeach St Marks Wind Farm Scoping Report July 2012v3.pdf

Holbeach St Marks Wind Farm Sc...

-----Original Message-----
From: Justine Bloy [mailto:Justine.Bloy@West-Norfolk.gcsx.gov.uk] On Behalf Of Revenues Email
Sent: 07 September 2012 09:01
To: Seymour, Sarah
Subject: FW: Scoping Report - Proposed wind farm, Holbeach St Marks

Good morning

Thank you for your enquiry regarding wind turbines.
I can confirm that your enquiry has been passed to our planning team and they will contact you directly with a response.
Please note that you should receive a response within the next 10 working days, however if you have not heard from us within this time please do not hesitate to contact us.

Kind Regards

Justine Bloy
Council Information Centre
Borough Council of Kings Lynn & West Norfolk
01553 616200
revenues@west-norfolk.gov.uk
www.west-norfolk.gov.uk

Have you considered paying your Council Tax by Direct Debit?

Applying for Direct Debit couldn't be easier. Simply call us on 01553 616200 with your bank details and we'll do the rest!

-----Original Message-----
From: Seymour, Sarah [mailto:SSeymour@sholland.gov.uk]
Sent: 06 September 2012 12:05
To: PlannL.Lincoln2.AN@environment-agency.gov.uk; e-emids@english-heritage.org.uk; office@ancientmonumentssociety.org.uk; planningliaison@anglianwater.co.uk; plantprotection@uk.ngrid.com; DIO-Safeguarding-Wind@mod.uk; windfarms@caa.co.uk; RosemaryD@cpre.org.uk; west-norfolk@west-norfolk.gov.uk; info@boston.gov.uk; mike.jones@RSPB.org.uk; info@lincstrust.co.uk; saleem.shamach@arqiva.com; consultations@naturalengland.org.uk; info@bto.org; annettefaulkner@btinternet.com; holbeachpc@btconnect.com; clerk.moulton@gmail.com; granhawk@fsmail.net; the.clerk@btinternet.com; Biggadike, Francis Cllr; Howard, Martin; Rudkin, Rita Cllr; Grocock,Rodney Cllr; Casson, Anthony Cllr; Woolf, Andrew Cllr; Chandler, Malcolm Cllr; Creese, Robert Cllr; Wilkinson, Sarah; pollution; Oliver, Ian; jon.sharpe@lincolnshire.gov.uk; LCCHighwaysSouth@lincolnshire.gov.uk; fsasecretary@fenlandairfield.co.uk; clared@arcusrenewables.co.uk
Subject: Scoping Report - Proposed wind farm, Holbeach St Marks

Dear Sir/Madam

I am writing to inform you of a proposal to develop a 12 turbine (maximum capacity 36 MW) windfarm development near Holbeach St Marks, Lincolnshire. As the development falls within Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 an environmental impact assessment (EIA) will be prepared and a request for a scoping opinion has been submitted to South Holland District Council.

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I have attached a copy of the scoping report for the proposed windfarm, which I am aware some consultees may have already received direct from the proposer. I would be grateful if you could consider the relevant sections and provide any comments in relation to points (i) to (iv) above by 27 September 2012.

Yours faithfully

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

Crew, Chris

From: Clare Dance [clared@arcusrenewables.co.uk]
Sent: 17 August 2012 10:34
To: Crew, Chris
Subject: FW: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Attachments: windfarm

windfarm

Dear Chris,

Please find attached a further consultation response from British Horse Society in relation to Holbeach St Marks Wind Farm.

Kind Regards,

Clare

-----Original Message-----
From: Clare Dance
Sent: 14 August 2012 09:50
To: Crew, Chris (ccrew@sholland.gov.uk)
Subject: FW: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Dear Chris,

Please find attached two further consultation responses (RSPB and British Horse Society) received in relation to Holbeach St Marks Wind Farm.

Kind Regards,

Clare

-----Original Message-----
From: Clare Dance
Sent: 09 August 2012 10:30
To: 'Crew, Chris'
Subject: RE: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Chris,

Please find attached the scoping responses that have been received to date in relation to Holbeach St Marks Wind Farm. Comments have been received from the following organisations:

Natural England
Environment Agency
Lincolnshire Wildlife Trust
British Horse Society (District Access Officer and South Lincolnshire Access Officer)
Highways Agency National Trust

I will contact the remaining consultees this week to establish whether they intend to provide any comments and will forward on any further responses as they are received.

Kind Regards,

Clare Dance
Environmental Consultant

Arcus Renewable Energy Consulting Ltd
2F Swinegate Court East
3 Swinegate
York
YO1 8AJ

Tel: 01904 715470
Mobile: 07825 784752
Email: clared@arcusrenewables.co.uk

-----Original Message-----
From: Crew, Chris [mailto:ccrew@sholland.gov.uk]
Sent: 23 July 2012 11:09
To: Clare Dance
Subject: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Dear Clare,

I write further to your letter and enclosed Scoping Report dated 09 July 2012.

I look forward to receiving copies of all consultation responses before, or shortly after, 07 August 2012. I will endeavour to respond formally by 21 August 2012.

Regards

Chris

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

Crew, Chris

From: ROBERT SCULLY [scullys@btinternet.com]
Sent: 12 August 2012 17:48
To: Clare Dance
Subject: windfarm

Dear Sir,

I am alarmed at the proposal for a windfarm along side our local bridleway .

I would be concerned that enjoyment of the route would be severely disrupted by the turbines , there are so few places to ride safely as it is without established bridleways being corrupted in this way .

Yours sincerely

Elise Scully BHSII.

Crew, Chris

From: Clare Dance [clared@arcusrenewables.co.uk]
Sent: 09 August 2012 10:30
To: Crew, Chris
Subject: RE: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Attachments: Scoping Responses- Holbeach St Marks.zip

Scoping Responses- Holbeach St...

Chris,

Please find attached the scoping responses that have been received to date in relation to Holbeach St Marks Wind Farm. Comments have been received from the following organisations:

Natural England
Environment Agency
Lincolnshire Wildlife Trust
British Horse Society (District Access Officer and South Lincolnshire Access Officer)
Highways Agency National Trust

I will contact the remaining consultees this week to establish whether they intend to provide any comments and will forward on any further responses as they are received.

Kind Regards,

Clare Dance
Environmental Consultant

Arcus Renewable Energy Consulting Ltd
2F Swinegate Court East
3 Swinegate
York
YO1 8AJ

Tel: 01904 715470
Mobile: 07825 784752
Email: clared@arcusrenewables.co.uk

-----Original Message-----
From: Crew, Chris [mailto:ccrew@sholland.gov.uk]
Sent: 23 July 2012 11:09
To: Clare Dance
Subject: Holbeach St Marks Wind Farm - Request for a Scoping Opinion

Dear Clare,

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I look forward to receiving copies of all consultation responses before, or shortly after, 07 August 2012. I will endeavour to respond formally by 21 August 2012.

Regards

Chris

Chris Crew
Principal Planning Officer
South Holland District Council

Direct Dial: 01775 764893
Fax: 01775 762937

Crew, Chris

From: Hildred, Ryan (NE) [Ryan.Hildred@naturalengland.org.uk]
Sent: 07 August 2012 15:32
To: Clare Dance
Cc: Info
Subject: EIA Scoping response - your ref 040/001/SCOP - Holbeach, Lincolnshire
Attachments: 58662-940_001_SCOP - Arcus EIA Scoping Opinion 12 turbines Lundys Farm Holbeach adj The Wash.pdf; Natural England Consultation Feedback(v3)_pub_0001.pdf

Dear Clare

Thank you for your consultation by posted letter (received 10th July 2012) on the EIA Scoping request for the proposed Holbeach St Marks wind farm (12 turbines).

Please find attached Natural England's formal response to this consultation.

<<58662-940_001_SCOP - Arcus EIA Scoping Opinion 12 turbines Lundys Farm Holbeach adj The Wash.pdf>>

If you require any further assistance, please do not hesitate to contact me.

Kind regards

Ryan

At **Natural England** we value our customers and seek to improve the quality of our services based on feedback and suggestions from you. If you would like to let us have your views, we would be grateful if you could take a few minutes to answer these questions and return it to us using the attached pdf.

<<Natural England Consultation Feedback(v3)_pub_0001.pdf>>

Ryan Hildred

Lead Adviser

Land Use Operations Team - Midlands

Natural England

Ceres House

2 Searby Road

Lincoln

LN2 4DT

Tel: 0300 060 2772 Mobile: 07785905291

Email: ryan.hildred@naturalengland.org.uk

Natural England is here to conserve and enhance the natural environment, for its intrinsic value, the wellbeing and enjoyment of people and the economic prosperity that it brings.

In an effort to reduce Natural England's carbon footprint, I will, wherever possible, avoid travelling to meetings and attend via audio, video or web conferencing.

Date: 07 August 2012
Our ref: 58662
Your ref: 940/001/SCOP

Clare Dance
Arcus Renewables

BY EMAIL ONLY

Natural England
Consultation Service
Hornbeam House
Electra Way
Crewe Business Park
CREWE
CW1 6GJ

T: 0300 060 3900

Dear Ms Dance

Case name: Request for scoping opinion
Location: Proposed Holbeach St Marks Wind Farm, South Holland District, Lincolnshire

Thank you for your consultation on the above dated 09 July 2012, which was received by Natural England on 10 July 2012.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

Case law[1] and guidance[2] has stressed the need for a full set of environmental information to be available for consideration prior to a decision being taken on whether or not to grant planning permission. Natural England therefore advises that the Environmental Impact Assessment (EIA) should give full consideration to:

1. Sites of Special Scientific Interest (SSSIs) and sites of European or international importance (Special Areas of Conservation, Special Protection Areas and Ramsar sites).
The development site is adjacent to the following designated nature conservation sites:

- The Wash SSSI
- The Wash SPA
- The Wash and North Norfolk Coast SAC
- The Wash Ramsar

Further information on the SSSI and its special interest features can be found at www.natureonthemap.naturalengland.org.uk The Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within this/these site[s] and should identify such mitigation measures as may be required in order to avoid, minimise or reduce any adverse significant effects.
There should also be an analysis of the potential impacts of the proposal on all other relevant statutory and non-statutory protected sites, as listed below:

---

[1] Harrison, J in *R. v. Cornwall County Council ex parte Hardy* (2001)
[2] *Note on Environmental Impact Assessment Directive for Local Planning* Authorities Office of the Deputy Prime Minister (April 2004) available from http://webarchive.nationalarchives.gov.uk/+/http://www.communities.gov.uk/planningandbuilding/planning/sustainabilityenvironmental/environmentalimpactassessment/noteenvironmental/

- Internationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar Sites. Details are available from the Joint Nature Conservation Committee website (www.jncc.org.uk).
- Nationally designated sites such as Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). Details are available from the Multi Agency Geographic Information for the Countryside website (www.magic.gov.uk) or the Natural England website (www.naturalengland.org.uk).

European sites (e.g. designated Special Areas or Conservation, Special Protection Areas and/or Ramsar Sites) fall within the scope of the Conservation of Habitats and Species Regulations 2010. Paragraph 169 of the National Planning Policy Framework requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites.

Under Regulation 61 of the Conservation of Habitats and Species Regulations 2010 an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site.

In this case the proposal is not directly connected with, or necessary to, the management of a European site. In our view it is likely that it will have a significant effect on internationally designated sites and therefore will require assessment under the Habitats Regulations. We recommend that there should be a separate section of the Environmental Statement to address impacts upon European and Ramsar sites entitled 'Information for Habitats Regulations Assessment'.

Ornithology
All wind farm proposals should include a full assessment of the impact on birds based on a sufficient level of baseline survey work. This should include an assessment of all potential impacts as a result of the **construction, operational and de-commissioning** stages of the wind farm proposal. Taking into account the above stages of the proposal, the Environmental Statement and relevant survey work should address matters such as:

- *Disturbance leading to displacement/exclusion* – for example, noise disturbance from construction machinery, the wind farm itself and maintenance vehicles across the life span of the scheme.

- *Collision risk/mortality* - baseline survey work (as indentified below) should inform the investigation of species mortality using accepted collision risk models and species specific avoidance rates – the results should then be quantified for significance against relevant SPA/SSSI/Ramsar populations.

- *Loss/degradation of habitat* – survey work should investigate the quality of habitat in the locality and its associated ornithological interest. The impact from all elements of the scheme (including wind turbines, access tracks and maintenance roads) should then be investigated and the relevant mitigation and compensation for its loss provided in the Environmental Statement.

Natural England notes the scope of the ornithological survey work and indeed we have already been party to pre-application discussions with Arcus/Infinis about ornithological survey work that has been undertaken to date. We generally recommend (in line with Scottish Natural Heritage's guidance):

- For breeding birds, the Common Bird Census (CBC) methods at least once every 2 weeks during the breeding season (March to July).

- For non-breeding birds, one to two visits per month.

- Vantage point (VP) observations to collect data on flight behaviour of target species, including information on flight direction, duration and height. Such observations are essential to quantify collision risk. Minimum of 36 hours recording per Vantage Point season to include November to March for wintering birds, March to July for breeding and spring passage birds, and mid July to October for autumn passage birds. VPs should be strategically located to record movements across the site and to determine areas of low and high flight activity.

- Furthermore, a minimum of 72 hours per vantage point per season for priority species including raptors.

- Nocturnal surveys for owls and night-flying migrants if appropriate

- Surveys to cover the full range of seasonal, diurnal and weather conditions to ensure some survey effort covers poor visibility conditions

Natural England's TIN069 *Assessing the effects of onshore windfarms on birds* provides advice on the detail required for the ornithological survey regime.

Further to the above requirement and in follow up correspondence to Arcus, due to the proximity to The Wash SSSI/SPA/Ramsar, we have advised that a minimum of **two years of ornithological survey work** is undertaken and provided in support of any planning application submission; this will reflect the changes in bird usage of the area due to seasonal differences, changes to cropping regimes etc.

We also recommend that you consult immediately with the RSPB about the proposal. Natural England understands that the proposed site was/is a breeding area for Montagu's Harrier and the RSPB will be able to provide exact locations of the breeding territories. We also have concerns about potential impacts upon hen harrier, marsh harrier, short-eared owl, dark-bellied Brent geese, pink footed geese and barn owl – survey work should investigate impacts upon these species accordingly.

2. Designated Landscapes and Landscape Character

Nationally Designated Landscapes

As the development site is within 20km of the Norfolk Coast Area of Outstanding Natural Beauty (AONB), consideration should be given to the direct and indirect effects upon this designated landscape and in particular the effect upon its purpose for designation within the environmental impact assessment, as well as the content of the relevant management plan for the Norfolk Coast AONB.

Landscape and visual impacts

Natural England would wish to see details of local landscape character areas mapped at a scale appropriate to the development site as well as any relevant management plans or strategies pertaining to the area. The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects of the development, such as changes in topography. The European Landscape Convention places a duty on Local Planning Authorities to consider the impacts of landscape when exercising their functions.

The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We strongly advocate the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2002. LCA provides a sound basis for guiding, informing and understanding the ability of any location to

accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed. Guidance on LCA is available here.

Natural England supports the publication *Guidelines for Landscape and Visual Impact Assessment*, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2002 (2nd edition). The methodology set out is almost universally used for landscape and visual impact assessment.

In order to foster high quality development that respects, maintains, or enhances, local landscape character and distinctiveness, Natural England encourages all new development to consider the character and distinctiveness of the area, with the siting and design of the proposed development reflecting local design characteristics and, wherever possible, using local materials. The Environmental Impact Assessment process should detail the measures to be taken to ensure the building design will be of a high standard, as well as detail of layout alternatives together with justification of the selected option in terms of landscape impact and benefit.

Heritage Landscapes
You should consider whether there is land in the area affected by the development qualifying for conditional exemption from capital taxes on the grounds of outstanding scenic, scientific or historic interest. These are considered to be designated landscapes of national importance and the impact of your plan on these should be assessed where appropriate. An up-to-date list may be obtained at www.hmrc.gov.uk/heritage/lbsearch.htm and further information can be found on Natural England's landscape pages here.

3. Access and Recreation
Natural England encourages any proposal to incorporate measures to help encourage people to access the countryside for quiet enjoyment. Measures such as reinstating existing footpaths together with the creation of new footpaths and bridleways are to be encouraged. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Relevant aspects of local authority green infrastructure strategies should be incorporated where appropriate.

Rights of Way, Access land, Coastal access and National Trails
The EIA should consider potential impacts on access land, public open land, rights of way and coastal access routes in the vicinity of the development.

4. Local Wildlife or Geological Sites
The EIA will need to consider any impacts upon local wildlife and geological sites. Local Sites are identified by the County ecologist, local wildlife trust or a local forum established for the purposes of identifying and selecting local sites; they are of county importance for wildlife or geodiversity. The Environmental Statement should therefore include an assessment of the likely impacts on any local site. The assessment should include proposals for mitigation of any impacts and if appropriate, compensation measures. Contact the County ecologist, local wildlife trust or Local Sites body in your area for further information.

5. Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2010
We strongly recommend that surveys for protected species (including, for example, great crested newts, reptiles, water voles, badgers and bats) should be carried out within the area affected by the development.

If any protected species are found the Environmental Statement should include details of:

- The species concerned;
- The population level at the site affected by the proposal;
- The direct and indirect effects of the development upon that species;
- Full details of any mitigation or compensation that might be required;
- Whether the impact is acceptable and/or licensable.

In order to provide this information there may be a requirement for a survey at a particular time of year. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and where necessary, licensed, consultants.

Natural England Standing Advice is available on our website to help local planning authorities better understand the impact of development on protected or BAP species should they be identified as an issue for particular developments. This also sets out, when, following receipt of survey information, the authority should undertake further consultation with Natural England.

6. Other features of nature conservation interest, e.g. habitats and species identified within the UK and County Biodiversity Action Plans.
Natural England advises that a habitat survey (equivalent to Phase 2) is carried out on the site, in order to identify any important habitats present. In addition, ornithological, botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present. The Environmental Statement should include details of:

- Any historical data for the site affected by the proposal (e.g. from previous surveys);
- Additional surveys carried out as part of this proposal;
- The habitats and species present;
- The status of these habitats and species (e.g. whether BAP priority habitat);
- The direct and indirect effects of the development upon those habitats and species;
- Full details of any mitigation or compensation that might be required.

The development should avoid adversely impacting sensitive areas for wildlife within the site, and should if possible provide opportunities for overall wildlife gain.

7. Cumulative and in-combination effects.
The EIA should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment. (Subject to available information):

a. Existing completed projects
b. Approved but uncompleted projects
c. Ongoing activities
d. Plans or projects for which an application has been made and which are under consideration by the consenting authorities
e. Plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

8. Flood risk and Local Plan/NPPF policies
As the proposal is located adjacent to coastal sea defences of The Wash, Natural England advises that the Environmental Statement investigates:

- The future viability of existing coastal sea defences in this locality – will there be any impact (landward or seaward) on the integrity of the sea defence structures?
- Will the proposal adhere to local planning/National Planning Policy Framework (NPPF) policies on flood risk protection in the South Holland (and wider) district?
- Will the proposal result in conflict with the current (and any proposed) policy options for coastal flood risk protection as identified in The Wash Shoreline Management Plan; we advise consultation with the Environment Agency in the first instance.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

For any correspondence or queries relating to this consultation only, please contact Ryan Hildred on 0300 060 2772. For all other correspondence, please contact consultations@naturalengland.org.uk.

We really value your feedback to help us improve the service we offer. We have attached a feedback form to this letter and welcome any comments you might have about our service.

Yours sincerely

Ryan Hildred
Lead Adviser
Land Use Operations - Midlands
0300 060 2772
ryan.hildred@naturalengland.org.uk

Crew, Chris

From: nicola.farr@environment-agency.gov.uk
Sent: 02 August 2012 14:23
To: Clare Dance
Subject: Environment Agency Response to: 940/001/SCOP

Follow Up Flag: Follow up
Flag Status: Red

Attachments: PlanningProposal.rtf

PlanningProposal.rtf

The proposal has been reviewed and I enclose the Environment Agency's comments on:
Holbeach St Marks Wind Farm,
South Holland
Lincs

LPA ref: 940/001/SCOP

Ms Clare Dance
Arcus Renewable Energy Consulting Ltd
2(F) Swinegate Court East
York
North Yorkshire
YO1 8AJ

Our ref: AN/2012/115191/01-L01
Your ref: 940/001/SCOP

Date: 02 August 2012

Dear Ms Dance

Environmental Impact Assessment Scoping Report
Holbeach St Mark's Wind Farm, South Holland, Lincolnshire

Thank you for submitting the above Scoping Report for our comments, on 24 July 2012. We have the following advice.

Flood risk
We note the intention to prepare a Flood Risk Assessment (FRA) for the development. The FRA should be appropriate to the scale, nature and location of the development in accordance with the National Planning Policy Framework, and should consider all potential sources of flooding and any mitigation measures to be incorporated.

We recommend that the applicant makes a formal enquiry, if this has not already been done, to obtain our Coastal Hazard Mapping and details of the River Welland and its defences. To do this, please email our Corporate Services team at custanno.lincoln2.an@environment-agency.gov.uk. Please note that information is chargeable.

Details of the electrical control building and substation should be provided. The finished floor levels of this building should be above the highest predicted flood depths on site.

The FRA should confirm whether the site needs to be manned or accessible at all times. If so, then safe access and egress should be discussed.

We recommend that the operator registers with our Floodline Warnings Direct Service and this intention should be stated within the FRA.

Details of the proposed impermeable area should be provided within the FRA along with confirmation of how surface water runoff will be managed, especially in relation to the proposed access tracks.

There are Internal Drainage Board (IDB) drains that run alongside the defences and therefore early discussion with the relevant IDB is recommended.

Development near a watercourse: Flood Defence Consent
Under the terms of the Water Resources Act 1991, and the Land Drainage and Sea Defence Byelaws, the prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 9 metres of the landward toe of the tidal River Welland, designated a 'main river', or within 9m of the landward toe of The Wash sea defences.

The report states that information regarding the grid connection will be part of a separate application. This application will also be of interest to us.

Hydrology and groundwater protection
We are satisfied with the proposed content for the hydrology chapter.

There is a licensed groundwater abstraction within the site boundary, approximately 0.5 km from the closest proposed turbine location. There is also another potential licensed abstraction within the site boundary, where a groundwater investigation is currently being undertaken. Although the groundwater vulnerability in the area is low and the geology is classed as unproductive strata, there is a local groundwater resource which is being exploited and needs to be protected.

The foundation design will be important, as well as mitigation measures during construction for both physical disturbance and changes in water quality of the groundwater resource. More detail on the foundation design will be expected at the application stage, and the abstractions should be considered as part of the Environmental Impact Assessment.

Historic landfill sites
The applicant should note that there are several historic waste disposal sites (landfills) in the proposed development area and in close proximity to it. Further information about these sites should be obtained from the local authority at an early stage to ensure that any impacts from/to these sites are fully understood and risk assessed. The site details we hold are:

HLD reference	EAHLD00278
Site name	North of Moulton Sluice
Site address	Moulton Marsh
Site reference	RD7-72-04/97, SH-72-04/97, 2500/5038
Easting	53440
Northing	332900
History	Period of use approximately 1940 to 1960. Redundant ditches

HLD reference	EAHLD00269
Site name	Middle Marsh Road
Site address	Holbeach St Marks, Lincolnshire
Site reference	RD7-63-01/89, SH-63-01/89, 2500/5042
Easting	534600
Northing	332700
Household	Yes
History	Advised by South Holland DC in 1989 as being a former refuse disposal site

Cont/d..

HLD reference	EAHLD00268
Site name	Main Drain
Site address	Moulton Marsh
Site reference	RD7-62-01/89, SH-62-01/89, 2500/5050
Easting	534100
Northing	332900
Household	Yes
History	Advised by South Holland DC in 1989 as being a former refuse disposal site.

HLD reference	EAHLD00270
Site name	Middle Marsh Road
Site address	Holbeach St Marks, Lincolnshire
Site reference	RD7-64-01/89, SH-64-01/89, 2500/5043
Easting	534100
Northing	333200
Household	Yes
History	Advised by South Holland DC in 1989 as being a former refuse disposal site

HLD reference	EAHLD00218
Site name	Moulton Marsh Landfill Site
Site address	Spalding
Site reference	R13, RD7-1-01/89, SH-1-01/89, 2500/5313
Operator	Lincolnshire County Council
Easting	534100
Northing	333500
Inert	Yes
Commercial	Yes
Household	Yes
Licensed	Yes
Waste comments	Disposal of inert, semi-inert, putrescible, domestic and difficult wastes, R13
Monitoring	Poisonous waste at TF 345 330

HLD reference	EAHLD00234
Site name	Holbeach Marsh WDS
Site address	Holbeach St Marks
Site reference	R1, RD7-3-01/89, SH-3-01/89, SH-1-01/89
Site operator	Lincolnshire County Council
Easting	536300
Northing	334500
Inert	Yes
Household	Yes
History	Advised by South Holland DC in 1989 as being a former refuse disposal site

Foul and surface water drainage
Details of the proposed drainage scheme for the site (including any foul water disposal from any toilet block etc) should be provided with the planning application.

Cont/d..

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours sincerely

Mrs Sharon Nolan
Planning Liaison Officer

Direct dial 01536 385229
Direct fax 01536 411354
Direct e-mail sharon.nolan@environment-agency.gov.uk

End

Crew, Chris

From: Info
Sent: 06 August 2012 09:09
To: Clare Dance
Subject: FW: Holbeach St Marks wind farm
Attachments: Arcus Holbeach St Marks wind farm scoping, TF33, aug12.pdf

L

From: Clare Sterling [mailto:CSterling@lincstrust.co.uk]
Sent: 02 August 2012 14:59
To: Info
Subject: Holbeach St Marks wind farm

FAO Clare Dance

Dear Ms Dance,

Thank you for consulting the Trust on the scoping report for the above proposed wind farm. Please find attached a copy of our comments.

Regards

Clare Sterling
Conservation Assistant
Lincolnshire Wildlife Trust
Banovallum House
Manor House Street
Horncastle
Lincolnshire
LN9 5HF

csterling@lincstrust.co.uk
01507 526667

Lincolnshire Wildlife Trust

Clare Dance
EIA Project Manager
Arcus Renewable Energy Consulting Ltd
Suite 2F Swinegate Court East
3 Swinegate
York
YO1 8AJ

Banovallum House
Manor House Street
Horncastle
Lincolnshire
LN9 5HF

Tel: 01507 526667
Fax: 01507 525732

2 August 2012

Dear Ms Dance

RE: REQUEST FOR A SCOPING OPINION FOR THE PROPOSED HOLBEACH ST MARKS WIND FARM (NEAR HOLBEACH), SOUTH HOLLAND, LINCOLNSHIRE

Thank you for inviting the Lincolnshire Wildlife Trust to comment on the scope of the EIA for this project.

We have read the scoping report and would query the assessment of the site as requiring a medium level of survey effort for bats. BCT guidance in Bat Surveys – Good Practice Guidelines, 2nd edition, Surveying for onshore wind farms suggests that wind farm sites of 9 or more turbines require a 'high' level of survey effort; since this project has a maximum of 12 proposed turbines, we would propose that a greater level of survey effort may be required than is currently set out in the scoping report.

The EIA should also include recommendations for appropriate means of habitat enhancement should the development be approved, including where possible, off-site habitat enhancements such as hedgerow planting, ditch enhancements, grassland creation and pond creation or management.

We are pleased with the intention of the ornithological surveys to meet the guidance set out in various best practice guidance. However, we would wish to express very strong concerns over the siting of a wind farm in this location, given the close proximity to The Wash which is designated as a Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar site and Site of Special Scientific Interest (SSSI). There is a strong potential for impacts on bird populations associated with the SPA and the competent authority will need to determine whether an Appropriate Assessment will be required. The proposed location also falls within an area identified by the RSPB which should have a '*presumption against wind turbines due to unacceptable risk to sensitive bird populations*' (Wind turbines and sensitive bird populations: Spatial planning for wind turbines in the Fens Natural Area, Lucking et al, 2004). We would additionally have concerns over the proximity to our Moulton Marsh nature reserve, which is designated as a Local Wildlife Site (LWS) and is located only 400m to the west of the proposed site.

It should be noted that the Lincolnshire Wildlife Trust does not hold records, all information relating to non-statutory sites and species records are held by the Lincolnshire Environmental Records Centre (LERC). We would recommend that any records obtained during the surveys are sent to the LERC to be added to their database.

Thank you for consulting the Trust. We would like to remain on the list of consultees for this project.

Yours sincerely

Clare Sterling
Conservation Assistant

Crew, Chris

From: Carole Bryant [carolebryant1964@hotmail.co.uk]
Sent: 26 July 2012 15:09
To: Clare Dance
Subject: holbeach st. marks wind farm scoping report

For the attention of Clare Dance

Ref:- Holbeach St. Marks Wind Turbine Scoping Report

The proposed site is totally unacceptable to local riding groups due to the proximity to a BRIDLEWAY. We have very few off road facilities in South Lincolnshire and as an access officer for the British Horse Society in South Lincolnshire
I would be prepared to contest this proposed site very strongly and encourage all other riding clubs in the area to prepare for active opposition.

Carole Bryant

Crew, Chris

From: Caroline DAEP [dunpony@madasafish.com]
Sent: 06 August 2012 22:17
To: Clare Dance
Subject: Holbeach St Marks windfarm

I am in receipt of the report for the proposed Holbeach St Marks wind farm and have a number of comments. In the main, the development is going to cause concern to riders using the surrounding bridleways and act as a deterrent to their legal use.

The proposed siting for the turbines is slap bang in the middle of one of the only circular rides in the area and the only one which incorperates no public roads. The route is used not only by local riders but also by people who transport their horses specifically to ride there and is used to host both pleasure rides and competitive rides through the year. It is featured in 'Lincolnshire on Horseback', published by the County Council and BHS, which is a guide for walkers, riders and cyclists.

Report Fig. 2. The BHS recommendation is that that turbines should be positioned at least twice the turbine height from from bridleways and 4 times the height where horses are not familiar with them.

Report Point 1.1.3. There is no indication where the access tracks will run. Part of the south side bridleway already runs along a concrete road, but the rest is grass which is a far superior surface for equestrians. It would seriously detract from the value of the route if the whole length were changed to hard tracks.

Report Point 4.3. There should be a viewpoint on the bridleway.

Report Point 9. There is a great potential for horses to be frightened by the noise of the turbines. That the noise increases in line with wind speed only exacerbates the problem because horses are naturely more easily upset in windy conditions and an increase in unfamiliar noise will not help in rider control. This will not be masked by the increase in ambient background noise as there few trees along the bridleway route.

Report Point 10. It would appear that use of the south side bridleway would be greatly impacted during construction.

Report Point 11. The proposal will have a major deterrent effect on riders traveling to the site to use the bridleways. The bridleways are not just north and south but to the east and west – and right through the middle.

Report Point 12.1. In this case flicker as described would not occur, but moving shadows on the north bank have the potential to upset horses as they will seem to come from nowhere.

The spread out nature of the proposed siting means that the hazzard the turbines pose is present throughout the length of the ride, and cannot be passed by quickly.

The possibility of ice being thrown from the blades has not been addressed.

Although it's accepted that some horses will not have a problem with being ridden in the vicinity of these huge moving structures, many will – and more riders will be put off for fear of being involved in an accident because they feel their horse may become frightened. This fear is magnified in this case because of the situation of the paths elevation. The north path runs along the top of the sea defence banks which are approaching 20' high and precipitously steep on one side and leading onto trecherous ground on the other. A frightened horse does not always look where he is going and coming down one of the banks in an uncontrolled fashion is very likely to result in injuries for both horse and rider and access for recovery is difficult.

Lincolnshire Wildlife Trust runs the nature reserve ajacent to the proposed site and is not on you consultation list.

Caroline Forrester

BHS District Access Officer

Crew, Chris

From: Taylor, Denise [denise.taylor@highways.gsi.gov.uk]
Sent: 26 July 2012 07:55
To: Clare Dance
Cc: 'info@sholland.gov.uk'
Subject: Proposed Holbeache St Marks Wind Farm South Holland Lincolnshire
Attachments: No Objection Letter.pdf

Hello Clare
Please see the No Objection Letter from the Highways Agency regarding the above.
Thank you
Denise

Denise Taylor
Highways Agency | The Cube | 199 Wharfside Street | Birmingham | B1 1RN
Tel: +44 (0) 121 6788495
Web: http://www.highways.gov.uk
GTN: 6189 8495

Safe roads, reliable journeys, informed travellers
Highways Agency, an executive agency of the Department for Transport.

HIGHWAYS AGENCY

Our ref: TF335325
Your ref: 940/001/SCOP

Arcus Renewables
2F Swinegate Court East
3 Swinegate
York
YO1 8AJ

Denise Taylor
Business Support
9th Floor
The Cube
199 Wharfside Street
Birmingham B1 1RN

Direct Line: 0121 678 8495
Fax: 0121 678 8558

25 July 2012

For the attention of Clare Dance

Dear Clare

REQUEST FOR A SCOPING OPINION FOR PROPOSED HOLBEACH ST MARKS WIND FARM (NEAR HOLBEACH) SOUTH HOLLAND, LINCOLNSHIRE

I an in receipt of the Request for a Scoping Opinion dated 9th July 2012, received by the Highways Agency in Bedford 10 July and Birmingham on the 12th July, regarding a proposed Development of a wind farm at the above location.

The proposed development is not expected to have a material impact on the closest strategic route, the A1. Therefore, under Article 25 of the Town and Country Planning (Development Management Procedure) (England) 2010, the Highways Agency has no objections to the proposal.

Yours sincerely

Denise Taylor
NDD Midlands
Email: denise.taylor@highways.gsi.gov.uk

cc: South Holland District Council

Crew, Chris

From: Hubbard, Alan [alan.hubbard@nationaltrust.org.uk]
Sent: 07 August 2012 15:33
To: Clare Dance
Cc: Derbyshire, Sian
Subject: Scoping Opinion for proposed Holbeach St Marks wind farm - response from National Trust

Dear Ms. Dance,

Thank you for your letter of 9th July (ref 940/001/SCOP) and the enclosed CD relating to the above matter.

Whilst National Trust does not currently have any particular interests in the immediate vicinity of the proposed development it does have interests within the wider area, in particular upon the North Norfolk Coast. On the basis of the information available in the Scoping Document it is difficult to assess the likelihood of impacts and it is considered that the visual/landscape impacts from the North Norfolk Coast could be significant and do need to be assessed.

In this context it is noted that the text of the Scoping Document does not define the extent of the Study Area at this stage and that this is to be the subject of further consultation. The limited information currently provided in plan form in the Document has a relatively modest Study Area of 20km (maximum); for a scheme of 12 turbines up to 130.5 metres tall to blade tip in a general flat and open landscape, along with views over the Wash, and where cumulative impacts are probable, it is considered that the study area should be a minimum of 30km. At present there is no ZTVI information to support the Scoping Document to inform a discussion about the Study Area.

Similarly the information regarding Viewpoints is quite imprecise at present and the identification of just 10 Viewpoints at this stage appears too limited. There are likely to be landscape/visual impacts from various points along the North Norfolk Coast and the Trust considers that representative viewpoints in this area should also be assessed as part of the Environmental Assessment work.

Accordingly National Trust is concerned upon the adequacy of the proposed assessment of landscape/visual impacts having regard to potential longer range views.

The Trust would welcome the opportunity to consider further the extent of the Study Area and the specific Viewpoints which will be the subject of detailed assessments and therefore wishes to be consulted along with the Local Planning Authority and Natural England as referred to at paragraphs 4.1 and 4.3. This process will be greatly assisted if informed by initial ZTVI plans.

In terms of the detailed consideration of these matters these will be reviewed by Sian Derbyshire my Planning Adviser colleague for the East of England. As you will see I have copied her into this e-mail so that you have her e-mail address. Sian is based at our East of England Regional Office at Westley Bottom, Bury St. Edmunds, Suffolk, IP33 3WD.

Regards,
Alan Hubbard

Planning Adviser
t National Trust
Midlands
Clumber Park Stableyard
WORKSOP
Nottinghamshire
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Holbeach St Marks Wind Farm

Scoping Report

July 2014

infinis

HOLBEACH ST MARKS WIND FARM

SCOPING REPORT

INFINIS

JULY 2014

Prepared By:

Arcus Consultancy Services

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 Background

This Scoping Report has been prepared by Arcus Consultancy Services Ltd ('Arcus') on behalf of Holbeach St Marks Wind Farm Limited ('the Developer'), and constitutes the formal request for an Environmental Impact Assessment (EIA) Scoping Opinion from South Holland District Council ('SHDC') for a proposed wind farm on land (the 'Development site') to the north of Holbeach St Marks, approximately 8 kilometres (km) north of Holbeach, Lincolnshire.

The Development site is predominantly flat and made up of large fields used for arable farming, bordered by hedgerows, shelter belts and field drains. The site location is shown in Figure 1.

The infrastructure associated with the wind farm, which combine to form the 'Proposed Development', will include:

- Wind turbines, turbine foundations and associated crane hardstanding areas;
- Access tracks;
- A meteorological mast;
- An on-site power collection system (transformers and underground cables); and
- A substation/control building.

A scoping report was submitted in July 2012 on the basis of a scheme of up to 12 wind turbines. However, following the receipt of consultation responses to that scoping report, as well as the completion of a second year of ornithological surveys, a decision has been made to reduce the size of the scheme to up to 5 wind turbines.

1.2 Purpose of the Scoping Report

Following the completion of the environmental surveys and assessments outlined in this Scoping Report, it is likely that an application for planning consent will be made to SHDC and it is anticipated that this planning application will require an Environmental Impact Assessment ('EIA') under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011[1] (the 'EIA Regulations'). More details on the legal requirements are presented in Chapter 2.

The findings of the EIA will be presented within an Environmental Statement ('ES') which will report the findings of the EIA as set out in the EIA Regulations. The requirement is to "describe the likely significant effects" of a development; effects that are not considered significant do not need to be described to meet the requirements of the EIA Regulations.

This Scoping Report presents an interim site design, evolved from the layout presented in the 2012 Scoping Report, and supporting information regarding the Proposed Development for the purposes of consultation. It provides information on the key issues anticipated and outlines the methodologies proposed for the various technical assessments. It has been prepared with a view to inviting comments on the revised layout, the approach to the EIA, surveys and methodologies and the content of the ES.

Comments submitted in response to this Scoping Report will be taken into account in the continued evolution of the site design, where possible, and will be reported in the ES.

[1]Legislation. The Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Available online at: http://www.legislation.gov.uk/uksi/2011/1824/contents/made [Accessed on 18/06/2014]

1.3 The Developer

Infinis is one of the UK's leading generators of renewable power. Infinis operates a growing portfolio of onshore wind, landfill gas and hydro-electric plants across the UK.

1.4 Principle Infrastructure Associated with the Proposed Development

1.4.1 Turbines

The layout and scale of development has already been through a number of iterations in the reduction from up to 12 wind turbines, as scoped in July 2012, to up to 5 wind turbines currently being considered.

The layout of the site will be developed further as the EIA process progresses, and will be particularly informed by further technical assessments including aviation, landscape and visual analysis and noise assessments. A provisional turbine layout is shown in Figure 2. As part of the scoping process, various turbine dimensions will be considered within the maximum parameters detailed below:

- Maximum number of turbines 5
- Maximum height to blade tip up to 132 metres (m)
- Generating capacity (per turbine) up to 3.4 megawatts (MW)
- Total generation capacity up to 17 MW

It is important to note that the most suitable turbine model for a particular location can change with time, as technology develops and wind data is gathered and analysed, and therefore a final choice of turbine for the Development has not yet been made. The most suitable turbine for the site would be chosen shortly before construction, subject to a procurement process, within the consented maximum tip height.

For the purposes of the EIA, a precautionary approach will be taken and the largest prospective turbine model within the above parameters will be assessed as the selected option. This allows a worst case scenario to be evaluated, for example, in the landscape and visual assessment and during collision risk modelling which will be undertaken as part of the ornithology assessment.

1.4.2 Meteorological Masts

1.4.2.1 Permanent Meteorological Mast

A permanent meteorological mast is required for the operational lifetime of the Proposed Development for power testing of the turbines and subsequently to provide a point for weather data collection, which will be integral to the running of the operational wind farm. It is likely to be placed on the site toward the prevailing wind direction and will be built to the same height as the turbine hub. Further details will be provided within the Environmental Statement (ES).

1.4.2.2 Temporary Meteorological Mast

A temporary guyed mast has been installed on-site since 2012 and will continue to provide details of the wind resource in order to help inform the final choice of turbine. The consent for the temporary met mast is due to expire in October 2015.

1.4.3 Access Tracks

Access tracks will be required to provide access to the individual turbine locations, construction compound, electrical control building and on-site substation and permanent meteorological mast. They will be constructed of graded stone and be approximately 5 m in width or as appropriate for the ground conditions as identified through a geotechnical survey. Use will be made of any existing tracks present on the site wherever practicable.

1.5 Grid Connection

Underground cabling, laid where possible alongside the access tracks, will link the turbine transformers to a single-story electrical control building and on-site substation. Each turbine transformer will be located either within the turbine nacelle, within the base of the tower or in a small enclosure at the base of the turbine, depending upon the final choice of turbine used.

The connection to the electrical grid network falls under a separate consent process and will be subject to a separate environmental investigation and planning application. As such it will not be considered as part of the EIA for the Proposed Development.

1.6 Decommissioning

The Proposed Development will be designed to operate for a period of 25 years. Provision will be made for the wind farm to be decommissioned and the site restored at the expiry of planning permission. Typically all above ground infrastructure will be dismantled and removed from the site, cables and turbine foundations will be cut off below ground level and covered with topsoil. Access tracks will be left for use by the landowners, or if appropriate, covered with topsoil and revegetated.

2 ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment (EIA) is a legal requirement for certain types of development. EIA is an iterative process of assessment and design, whereby prediction and assessment of effects will inform the eventual design of the proposal. The proposal can then be refined in order to avoid or reduce potential environmental effects where necessary.

2.1 EIA Process

During the EIA process, impacts predicted to arise during construction, operation and decommissioning will be assessed and mitigation proposed as appropriate. This includes all temporary construction facilities and other buildings or structures which will be on site for the duration of the wind farm, such as the control building and meteorological mast. The following key stages will be followed through the EIA process:

- Scoping and consultation: with relevant statutory consultees and other stakeholders to identify existing environmental information and agree assessment methodologies;
- Baseline Studies: through review of desk-based and field studies as required;
- Layout Iterations: following identification of baseline sensitivities, a preferred layout for the Proposed Development will be established which seeks to minimise adverse environmental effects by utilising 'Embedded Mitigation' within the design where feasible;
- Assessment of Effects: assessment of the significance of effects;
- Mitigation: identification of further mitigation measures designed to avoid, reduce, remedy or compensate for any predicted significant effects. Other measures may also be described which seek to reduce any non-significant effects;
- Residual Effects: identification and assessment of residual effects which occur after all mitigation has been implemented; and
- Cumulative Effects: an assessment of the cumulative effects of other identified developments along with the Proposed Development.

2.2 Consultation

The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. Consultation forms an integral role throughout the EIA process. Following scoping, and at a date to be decided, public exhibitions will be held in locations nearby the site providing the opportunity for the local community and stakeholders to learn more about the proposal and give feedback and comments to the project team. Consultation on specific technical issues will also be undertaken where required as part of the EIA process.

2.3 Cumulative Assessment

The extent of any cumulative assessment relative to each technical assessment will be agreed during the consultation process and can include both existing and proposed wind farm developments and other forms of development. For example, potential cumulative landscape and visual effects that relate to the intervisibility of individual wind farm development schemes, are likely to be wider in extent than potential cumulative noise effects which if found to arise would be limited to receptors in the more immediate vicinity of the Proposed Development. At the time of writing it is known that there are a number of wind energy proposals in the area and other operational wind farms in the wider region.

In relation to some of the technical assessments, specific guidance and policy exists advising that effects associated with existing wind farm developments should be considered as cumulative effects, in addition to effects associated with proposed wind farm developments.

New proposals for wind energy development have been stimulated by the policy support shown by the UK Government. Government guidance on renewable energy developments is now set out in the National Planning Policy Framework (the 'NPPF', 2012)[2]. The NPPF states that planning authorities should design their policies to maximise renewable energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts. Scottish Natural Heritage (SNH) Guidance 'Assessing the Cumulative Impact of Onshore Wind Energy Developments' (March 2012), advises that cumulative assessment should include:

- Existing development, either built or under construction;
- Approved development, awaiting implementation; and
- Proposals awaiting determination within the planning process with design information in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application. Note that this category also includes recently refused applications which may yet be appealed.

It is not proposed to consider the cumulative effects of schemes for which applications have not been submitted (such as those at Scoping stage) because of the uncertainty over whether applications will be forthcoming and over turbine details (locations and sizes).

Whilst the grid connection will not form part of the EIA, the cumulative effects of the grid connection works for the wind farm will be considered and assessed as appropriate in the ES.

2.4 Timescales

The collection of site data to inform the assessments described in this report has been ongoing, and subject to the outcome of assessments, a planning application for the Proposed Development is anticipated in Spring/Summer 2015.

2.5 Structure of ES

Subject to consultation responses the ES will comprise the following:

- Volume I: Main ES Report, which reports the findings of the EIA;
- Volume II: accompanying figures and visualisations;
- Volume III: Technical Appendices which contain detailed technical information supplementing the findings presented within Volume I; and
- Non-technical summary providing a summary of the information presented in the ES.

A separate Planning Statement, Design and Access Statement and Statement of Community Involvement (SCI) will also be prepared in support of the planning application. These documents will not form part of the formal ES.

[2] Department of Communities and Local Government, March 2012, *"National Planning Policy Framework"* Available online at http://www.communities.gov.uk/documents/planningandbuilding/pdf/2116950.pdf [Accessed on 18/06/2014]

3 POLICY CONTEXT

3.1 National Energy Policy

The Framework Convention on Climate Change, otherwise known as the Kyoto Protocol[3], required the United Kingdom (UK) to reduce its greenhouse gas emissions (principally carbon dioxide (CO_2)) by 12.5% by 2008 to 2012, based on 1990 emission levels.

In 2008, the Government became the first country in the world to write emission targets into legislation when the Climate Change Act 2008[4] gained Royal Assent. Within this document, the Government set a binding commitment to cut the UK's carbon emissions by 80% by 2050, requiring targets to be set on the total amount of emissions in successive five year cycles (known as carbon budgets), so that by 2020 UK emissions will be 18% below 2008 levels, and 34% below 1990 levels.

The Committee on Climate Change (CCC) established under the Climate Change Act 2008, is required to make an annual assessment of progress in reducing emissions and to advise the Secretary of State on progress towards meeting the Carbon Budgets. The CCC, in its most recent progress report[5] advised Government that, whilst the UK has met its first carbon budget, later carbon budgets are unlikely to be met, as energy use trajectories increase. The CCC is clear that if the Government is to meet its legally binding targets it will be necessary for Government to develop and implement further policy measures over the next two years, and increase the pace of delivery.

The UK is also subject to legally binding targets in respect of the use of energy from renewable resources, under the Renewable Energy Directive 2009/28/EC[6]. The UK's obligation is for 15% of all energy consumption to come from renewable energy sources by 2020. According to the 2011 DECC Energy White Paper approximately 30% of electricity generation will need to be produced from renewable sources by 2020 in order to meet the EU target.[7]

In July 2011 DECC published the Planning our Electric Future White Paper[8] which highlights the importance of energy security and security of energy supplies. It states that the security of supply is threatened as existing plant closes. Over the decade up to 2020 the UK will lose around 25% (20GW) of existing generation capacity as old or more polluting plant close. Associated with this is the increasing likelihood of costly blackouts. The white paper identifies that the challenges of decarbonisation and security of supply are best met today through a combination of measures and that the low-carbon and renewable energy objectives set by the Government reflect this approach.

The United Kingdom Energy Trends[9] provides the most up to date Government statistics, in part, on electricity supplied from renewable energy resources. This states that during 2012, across the United Kingdom as a whole, 11.3% of electricity generated within the United Kingdom was from renewable resources, accounting for 4.1% of total energy

[3] United Nations (1998) *The Kyoto Protocol to the United Nations Framework Convention on Climate Change,* Available online at: http://kyotoprotocol.com/resource/kpeng.pdf [Accessed 20/03/2014]

[4] HMSO, *Climate Change Act 2008*, Available online at: http://www.legislation.gov.uk/ukpga/2008/27/contents [Accessed on 20/03/2014]

[5] Committee on Climate Change, 2013, Meeting Carbon Budgets – 2013 Progress Report to Parliament. Available online at: http://www.theccc.org.uk/wp-content/uploads/2013/06/CCC-Prog-Rep-Book_singles_web_1.pdf [Accessed 20/03/2014]

[6] Directive 2009/28/EC of the European Parliament and of the Council, Promotion of the Use of Energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, European Union.

[7] DECC (2011) Planning our electric future: A White Paper for secure, affordable and low-carbon electricity

[8] DECC (2011) Planning our electric future: A White Paper for secure, affordable and low-carbon electricity

[9] Department of Energy and Climate Change (2013) *Statistical press release: Digest of UK energy statistics 2013*, TSO. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225045/statistics_press_notice_2013.pdf [Accessed 20/03/2014]

consumption. Although these figures do not include consented schemes which are not yet constructed, they do demonstrate that significant additional renewable generating capacity will be required to achieve the targets agreed for 2020.

The Digest also reports that the proportion of UK energy imported from abroad has reached a *"dependency level"* of 43%. This has risen 7% in over a year, since the 2012 Digest.

The UK Government published an Update[10] in 2013 to the UK Renewable Energy Roadmap. Whilst acknowledging that progress has been made towards the 2020 targets, Central Government confirms the importance of onshore wind:

"Onshore wind, as one of the most effective and proven renewable energy technologies has an important role to play in a responsible and balanced UN energy policy".

3.2 National Planning Policy

3.2.1 The National Planning Policy Framework

The National Planning Policy Framework ("the NPPF") was published on 27th March 2012 and must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. It sets out the Government's planning policies for England and how these should be applied.

The NPPF contains a presumption in favour of sustainable development with paragraph 15 stating:

"Policies in Local Plans should follow the approach of the presumption in favour of sustainable development so that it is clear that development which is sustainable can be approved without delay".

One of the core planning principles is to encourage the use of renewable resources including the development of renewable energy. This is reflected in Section 10: 'Meeting the Challenge of Climate Change, Flooding and Coastal Change', which encourages local authorities to make positive provision for renewable energy development. Paragraph 97 states:

"To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources".

The NPPF advises that when determining a planning application for renewable energy development, local authorities should not require the applicant to demonstrate the overall need for renewable energy, and should approve the application if its impacts are (or can be made) acceptable.

The NPPF also makes it clear that National Policy Statements (NPS) also form part of the overall framework of national planning policy, and are a material consideration in decisions on planning applications. Both the NPS on Energy (EN-1)[11] and Renewable Energy (EN-3)[12] are highly supportive of renewable energy development, and provide specific and up to date guidance for wind farms and their associated environmental assessments.

[10] Department of Energy and Climate Change, 2013, UK Renewable Energy Roadmap Update 2013. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/255182/UK_Renewable_Energy_Roadmap_-_5_November_-_FINAL_DOCUMENT_FOR_PUBLICATIO___.pdf [Accessed 20/03/2014]

[11] DECC, (2011)*Overarching National Policy Statement for Energy (EN-1),* Available online at: http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/consents-planning/nps2011/1938-overarching-nps-for-energy-en1.pdf [Accessed 20/03/2014]

[12] DECC, (2011), *National Policy Statement for Renewable Energy Infrastructure (EN-3)-Version for Approval,* Available online at: http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/consents-planning/nps2011/1940-nps-renewable-energy-en3.pdf [Accessed 20/03/2014]

The NPPF is also clear that, as regards decision making, the approach of local authorities should be positive to foster the delivery of sustainable development. Paragraph 187 states:

"Local planning authorities should look for solutions rather than problems, and decision-takers at every level should seek to approve applications for sustainable development where possible."

The NPPF has been published for more than 2 years and in accordance with paragraph 215:

"due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given)".

The NPPF reiterates that planning legislation requires planning applications to be determined in accordance with the Development Plan unless material considerations indicate otherwise.

The NPPF also makes it clear that, whilst regional spatial plans have been revoked, that the evidence base for the preparation of those plans remains a material planning consideration.

3.2.2 National Policy Statement on Energy (EN-1)

The NPS on Energy (EN-1) was approved in July 2011 and sets out the UK's overarching energy policy for the delivery of major energy infrastructure. EN-1 recognises the need to secure a more sustainable source of energy to meet demands.

Paragraph 3.2.3 is also clear of the importance that Central Government attaches to the need for new energy infrastructure, stating that:

"The Government considers that, without significant amounts of large-scale energy infrastructure, the objectives of its energy and climate change policy cannot be fulfilled."

EN-1 goes onto identify that the need for such energy infrastructure is needed to meet carbon reduction objectives, to ensure there is security of energy supply, that aging electricity generating capacity is replaced, to support an increased supply from renewables and meet the urgency of need for new capacity.

Paragraph 3.3.10 underlines the importance of wind energy in order for the UK to diversify and decarbonise electricity generation, stating that:

"the Government is committed to increasing dramatically the amount of renewable generation capacity. In the short to medium term much of this is likely to be onshore and offshore wind".

EN-1 goes onto identify a number of assessment principles, and advises that decision makers need to weigh adverse impacts against benefits. Decision makers are required to take into account potential benefits, including the need for energy infrastructure, job creation and any long term or wider benefits as well as adverse impacts, including measures to mitigate any adverse effects.

3.2.3 National Policy Statement on Renewable Energy Infrastructure (EN-3)

The NPS on Renewable Energy Infrastructure (EN-3) sets out the need to significantly increase generation from renewable energy, including wind energy development. EN-3 confirms it is to be read in conjunction with EN-1. Paragraph 1.1.1 of EN-3 underlines the importance of the generation of electricity by stating:

"Electricity generation from renewable sources of energy is an important element in the Government's transition to a low-carbon economy. There are ambitious renewable energy

targets in place and a significant increase in generation from large-scale renewable energy infrastructure is necessary".

Paragraph 2.7.1 is clear on the important role of onshore wind in electricity generation from renewable energy:

"Onshore wind farms are the most established large-scale source of renewable energy in the UK. Onshore wind farms will continue to play an important role in renewable energy targets."

EN-3 then goes on to detail those aspects which should be taken into consideration when assessing applications for onshore wind farms. Paragraphs 2.7.30 to 2.7.40 provide specific considerations in respect of biodiversity. Potential impacts on bats are acknowledged although mitigation should also be considered to reduce impacts, including in respect of a layout that minimises risk and making the land surrounding the turbines less attractive to relevant species.

In respect of the historic environment, EN-3 sets out that the length of time for which consent is sought should be taken account of when considering the effects on the setting of designated heritage assets.

In respect of landscape and visual aspects, paragraph 2.7.48 confirms landscape and visual effects are inevitably an aspect of all commercial wind farm developments:

"Modern onshore windfarm turbines that are used in commercial wind farms are large structures and there will always be a significant landscape and visual effects from their construction and operation for a number of kilometres around a site."

Paragraph 2.7.49 however, confirms there is still a need for wind farms to be carefully designed, by stating:

"The arrangement of wind turbines should be carefully designed within a site to minimise effects on landscape and visual amenity while meeting technical and operational siting requirements and other constraints".

Paragraphs 2.7.55 to 2.7.58 confirm that, in respect of both noise assessment and decision making, 'The Assessment and Rating of Noise from Wind Farms' ("ETSU-R-97") should be used. Paragraph 2.7.58 also makes it clear that where ETSU-R-97 recommended noise limits are met, wind farm development is acceptable in respect of noise impacts:

"Where the correct methodology has been followed and a wind farm is shown to comply with ETSU-R-97 recommended noise limits, the [decision maker] *may conclude that it will give little or no weight to adverse impacts from the operation of wind turbines."*

EN-3 also provides guidance on shadow flicker, stating that significant impacts are unlikely to occur at a distance of ten rotor diameters from a turbine.

3.3 Development Plan

The Development Plan relevant to the site comprises:

- Saved policies from the South Holland Local Plan (adopted July 2006) prepared by South Holland District Council (SHDC).

Policy SG1-General Sustainable Development of the South Holland Local Plan states:

"Planning permission for development will be granted where the Council is satisfied that the proposal is consistent with the principles of sustainable development, and where:

1) the quality of life for residents is unimpaired or enhanced;

2) reasonable measures have been taken to conserve energy and natural resources; and

3) South Holland's essential character and main environmental assets are not damaged."

The supporting text to this policy recognises that development plans need to be concerned with environmental issues which are long term and irreversible, such as global warming and the consumption of non-renewable resources.

Policy EN3 which related to renewable energy is not a 'saved' policy of the South Holland Local Plan.

The ES will set out the relevant aspects of the Development Plan at the time the application is submitted. The dated nature of South Holland Local Plan is however, noted in light of the much recent guidance in the NPPF, and that the NPPF is clear that the weight to be attached the development plan policies is dependent on their consistency with the NPPF.

The South East Lincolnshire Local Plan is under preparation by the South East Lincolnshire Joint Strategic Planning Committee for both SHDC and Boston Borough Council. The South East Lincolnshire Local Plan will cover both the local authority areas of South Holland District and Boston Borough.

When adopted, the South East Lincolnshire Local Plan would replace the saved policies in the South Holland Local Plan. The South East Lincolnshire Local Plan will now comprise only one document and is at an early stage of preparation, and thus has not been considered further in this Scoping Report. It is understood from the Revised Local Development Scheme (March 2014) that a period of evidence gathering is ongoing at present, that a draft plan will be produced in 2015 and adoption is due to take place in 2016.

The Council has adopted Supplementary Planning Guidance on Wind Energy ("the SPD"), which highlights a number of considerations in respect of assessing wind energy proposals. The SPD also contains a landscape capacity map, which sets out limited locations which it views may be suitable for wind energy. It is noted that the SPG also significantly predates the more up to date and highly supportive guidance (in principle) to wind energy, as set out in the NPPF.

Lincolnshire County Council have published a Wind Farm Position Statement (2010, updated 2012) ("the Position Statement"). However, it has now been accepted by most decision makers, including at appeal, that no weight should be attached to the Position Statement in the determination of planning applications. This is because it is contrary to national planning policy and is a politically motivated document.

The potential for onshore wind has been extensively researched in Lincolnshire, including the Faber Maunsell Report (2009)[13] and the Low Carbon Energy Opportunities Report for Local Planning Areas (2011)[14]. Both these reports conclude there is significant potential for onshore wind, including in South Holland.

[13] Faber Maunsell on behalf of the East Midlands Regional Assembly (2009) Reviewing Renewable Energy Targets for East Midlands, East Midlands Regional Assembly.

[14] LUC, CSE and SQW on behalf of East Midlands Councils (2011) Low Carbon Energy Opportunities and Heat Mapping Report for Local Planning Areas across the East Midlands: Final Report, East Midlands Councils.

4 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

Landscape and visual effects are one of the key environmental issues associated with wind farm development and their assessment forms a central component of the ES. Landscape architects specialising in the assessment of effects of wind farms will be appointed to undertake the assessment. Whilst utilising related information, the landscape assessment will be treated as two separate (but related) assessments for the purpose of the EIA, as recommended by the Landscape Institute. It is the combined assessment which is referred to as the Landscape and Visual Impact Assessment (LVIA). The two categories of potential effect are:

- Landscape effects, which relate to the effects of the proposals on the physical and other characteristics of the landscape and its resulting character and quality; and
- Visual effects, which relate to the effects on views experienced by visual receptors (e.g., residents, footpath users, tourists, etc.) and on the visual amenity experienced by those people.

A wind farm would add an additional visible landscape component within the general area. The significance of this will vary according to the distance from which it is observed and the character of the landscape.

The assessment will be carried out using a methodology that has been specifically devised for the landscape and visual assessment of wind farms. This methodology accords with guidance given in the Landscape Institute's 'Guidelines for the Assessment of Landscape and Visual Impacts: Third Edition'.

The LVIA will follow an established procedure for determining impact significance. The sensitivity of the baseline landscape resource and visual amenity will be determined and cross-referenced against the magnitude of change caused by the development.

The study area for the landscape and visual assessment will be determined in consultation with the local planning authority, and will include all locations considered to have the potential to experience landscape or visual effects that may be identified as significant for the purposes of the EIA Regulations.

4.1 Consultation

Consultation will take place through scoping to agree the assessment methodology, study area and the representative viewpoints. The following paragraphs provide an initial overview of these elements and the approach that is proposed to be taken.

4.2 Landscape Methodology

The appointed LVIA specialists will examine baseline conditions of the landscape character without the wind farm, for present and likely future situations. Key characteristics of a landscape character are defined as those physical, ecological and aesthetic components that combine to make a distinct landscape type.

The assessment of effect involves the identification of:

- Landform and composition including type and rate of change;
- Landscape character areas which would experience change as a result of the proposed wind farm;
- Nature of these changes to landscape character areas;
- Extent to which identified key characteristics of the affected landscape character areas would be changed;
- Extent to which the overall landscape resource would be changed;
- Effect on local communities;
- Effect on transport routes; and
- Effect on landscape and historic designations.

4.3 Baseline

There are no statutory landscape designations on the site.

The Norfolk Coast Area of Outstanding Natural Beauty (AONB) lies approximately 19 km to the east of the site at its closest point.

There are two Registered Parks and Gardens within 20 km of the site. The closest of these is Boston Cemetery, located approximately 11 km north-north-west of the site.

Figure 3 in Appendix 1 shows landscape designations within 20 km of the Proposed Development.

4.4 Visual Assessment Methodology

A series of assessment viewpoints will be determined following consultation with SHDC, Natural England and other consultees. These viewpoints will represent different visual receptor types (e.g., observers from residential properties, footpaths, roads, tourist attractions, etc.) and also at different distances and directions from the Proposed Development.

Views from a number of the viewpoints will be selected to be represented as photomontages with the remainder depicted as wireline diagrams. Appropriate photomontage views will be agreed with consultees and SHDC.

A preliminary list of viewpoints is shown in Table 4.1. This list is the same as the viewpoint list proposed in the 2012 Scoping Report.

Table 4.1: Preliminary viewpoint list

No.	Viewpoint	Visual Receptor Type
1	Holbeach St Marks	Settlement
2	Holbeach St Matthew	Settlement
3	Holbeach	Settlement
4	Fosdyke	Settlement
5	Boston	Settlement
6	Kirton/ A16	Settlement/Road
7	A17, on Moulton Marsh (near junction with B1357)	Road
8	Macmillan Way	Recreational Route
9	Havenside Country Park	Recreational Area
10	Norfolk Coast AONB	Designation

4.5 Scoping Layout and Design Iteration

The scoping layout has evolved from the layout presented in the 2012 Scoping Report and does not represent a final layout. Throughout the EIA process site layout design will continue to evolve in response to consultation responses and environmental surveys. This process ensures that the final layout of the proposed wind farm is acceptable in landscape and visual terms while also complying with other environmental and technical constraints.

4.6 Cumulative Assessment

The cumulative assessment will be conducted as set out in section 2.3 of this Scoping Report. The final list of sites to be considered will be agreed following consultation with SHDC.

At this stage it is proposed to exclude from the assessment of cumulative effects all turbines with a blade tip height of less than 50 m, unless such turbines are located within 3 km of the Proposed Development.

A series of cumulative visibility maps will be prepared to show the effect of the visibility of different wind farms in combination. The overlap of areas of visibility with mapped features indicates potential effects on receptors that will be further explored through viewpoint assessments and cumulative effects within landscape character areas. These will be summarised and evaluated by receptor groups.

4.7 Residential Amenity Survey

In addition to the work undertaken to inform the ES, a survey of residential properties within 1 km of the site will be carried out, and anticipated views of the Proposed Development from these properties will be reported. It is intended to present this as a technical appendix to the LVIA chapter.

5 ECOLOGY

Climate change is recognised as causing a loss of biodiversity and other effects on wildlife, some of which are irreversible. Natural England states that, "Wind energy developments, appropriately designed and sited, play an important part in a low-carbon, more efficient and sustainable energy system which is needed to tackle climate change." Furthermore, a report by the Institute for European Environmental Policy commissioned by the Royal Society for the Protection of Birds (RSPB) states that "Well conceived and planned wind farms can give rise to local offsite nature conservation benefits..."[15].

Natural England also states that "Each wind energy proposal should be subject to an evidence-based appraisal, considering individual and cumulative impacts on the natural environment and underpinned by appropriate monitoring to inform better future decision making." Therefore, the key ecological issues to be addressed in detail as part of the EIA process are the potential for indirect and direct effects on species, habitats and ecological processes, as well as on sites designated for their nature conservation value.

Alternative solutions and mitigation will be identified where the assessment indicates that there is a potential significant impact upon important habitats and species as a consequence of the Proposed Development. Potential impacts on avian interests are covered separately in Section 6: Ornithology.

5.1 Potential Effects of the Proposed Development

The scale and location of the Proposed Development, especially following the reduction in the scale of the wind farm from that originally scoped in July 2012, will limit potential ecological effects since the turbines and most other infrastructure will be located within arable land – a habitat generally considered to be of limited ecological value.

The key issues for the assessment are likely to include:

- Loss of, and disturbance to, terrestrial habitats due to land take by the wind turbines and associated infrastructure;
- Loss of habitat important for the maintenance of species' conservation status;
- Direct disturbance of, and harm to, animals, including the displacement of species from the proximity of the Proposed Development; and
- Potential legal offences (e.g. disturbance of protected species), even when significant adverse ecological effects are unlikely.

5.2 Statutory Designated Sites

A review of available published data[16,17], identified a number of sites designated for wildlife interest within the area. Table 5.1 provides a summary of Special Protection Areas (SPA) within 20 km of the potential turbine area, and Special Areas of Conservation (SAC), Ramsar wetlands, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR) within 5 km. Due to the close proximity of The Wash, the assessment will give particular attention to potential effects on its integrity and qualifying interests, including both its habitats and species. Figure 3 shows statutory designated sites in relation to the site boundary.

[15] Bowyer, C.et al. (2009), Positive Planning for Onshore Wind: Expanding onshore wind energy capacity while conserving nature. A report by the Institute for European Environmental Policy commissioned by the Royal Society for the Protection of Birds. Institute for European Environmental Policy (IEEP): London.
[16] www.magic.gov.uk
[17] www.jncc.gov.uk

Table 5.1 Summary of Statutory Designated Sites

Site	Designation	Distance & Direction	Description
The Wash	SSSI	Borders survey area	The boundaries of these sites overlap to a large extent and for simplicity are described together. The largest estuarine ecosystem in Britain. Internationally important intertidal mudflat and saltmarsh habitats supporting valuable flora and fauna, including assemblages of birds (breeding, wintering and passage), common seal and otter.
The Wash	NNR	0.2 km north	
The Wash	Ramsar	Borders survey area	
The Wash & Norfolk Coast	SAC	Borders survey area	
The Wash	SPA	Borders survey area	
Havenside	LNR	5.0 km north	Variety of habitats including rough grassland, scrub, meadow, ponds and mudflats. Contiguous with the Wash.

5.3 Non-Statutory Designated Sites

Information about non-statutory designated sites is not publicly available and will be sought during the desk study.

5.4 Desk Study

Key to the assessment process will be the collation of existing ecological records through a desk study and consultations. Existing records of habitats, species and designated sites help to inform survey efforts and provide a historical and regional context for the assessment. Data requests and consultations will be carried out with, or reference made to, the following:

- Lincolnshire Environmental Records Centre (LERC);
- Natural England;
- Lincolnshire Badger Group;
- Lincolnshire Bat Group;
- Lincolnshire Wildlife Trust (LWT);
- Lincolnshire Biodiversity Action Plan (LBAP);
- The Wash Biodiversity Action Plan; and
- South Holland Internal Drainage Board Biodiversity Action Plan.

In light of initial requests and survey results, further information and data requests will be made to other sources, such as specialist species recorders.

5.5 Baseline Survey

Ecological surveys are necessary to provide an up-to-date baseline against which the potential effects of the Proposed Development can be assessed. All surveys will be undertaken by suitably qualified and, if necessary, licensed ecologists working under the Institute of Ecology and Environmental Management's professional code of conduct.

5.5.1 Extended Phase 1 Habitat Survey

An extended Phase 1 habitat survey will be carried out across the entire site boundary and immediately adjacent areas, with additional effort targeted at likely construction areas and identifying the locations of any rare or scarce plants or invasive species that might be present, following JNCC methods[18]. Target notes will be taken to provide further

[18] Joint Nature Conservation Committee (JNCC) (2004) Handbook for Phase 1 habitat survey: a technique for environmental audit. JNCC.

information about features of ecological interest, and plant species recorded to check the existence of notable plant species (such as greater water-parsnip, a LBAP priority species). The survey will be carried out during the optimum period (April to September) and will include an assessment of the ecological importance of hedgerows (if present) as defined by the Hedgerows Regulations 1997. The extended Phase 1 habitat survey will allow an assessment of the potential impact of habitat loss due to the construction of the Proposed Development and will also help to guide the scope of other ecological surveys. Any priority habitats within the survey area will be subject to National Vegetation Classification (NVC)[19] survey. The Proposed Development includes only terrestrial and freshwater habitats and so Marine Habitat Classification[20] of the coastal habitats will not be necessary.

5.5.2 Invertebrates

Habitats will be assessed for their potential to support important arthropod assemblages and appropriate avoidance or mitigation will ensure that high-value habitats are not adversely affected by the Proposed Development. Given the intensive arable landscape across most of the site, detailed entomological surveys will not be undertaken.

5.5.3 Freshwater Fish

The LBAP includes seven priority species (also UKBAP priorities) and the principal threats to these species are habitat loss and barriers to migration and dispersal. The Proposed Development is extremely unlikely to exacerbate these threats since no direct or major watercourse works are proposed. Consequently, fish surveys will not be carried out as part of the assessment.

5.5.4 Amphibians

Great crested newt is a UKBAP and LBAP priority species and receives protection under the Wildlife and Countryside Act 1981. Great crested newts also receive strict protection under the Conservation of Habitats and Species Regulations 2010 (the 'Habitat Regulations') as a European protected species. Smooth newt and palmate newt are also LBAP priorities.

A search for ponds and other water bodies within 500 m of the Proposed Development will be undertaken, where access permits, and will be supported by examination of maps and aerial photographs. Suitable water bodies will be subject to further detailed presence/absence surveys between mid-March and mid-June in line with best practice guidance[21] and under licence from Natural England, as well as adhering to ARG-UK guidance on minimising the risk of spreading disease (particularly Chytridiomycosis) among amphibian populations.

Observations of other amphibians, including common toad (a UKBAP priority species), will also be made during the course of the great crested newt surveys. Natterjack toad, a European protected species and UKBAP and LBAP priority, is known to occur within the region but not near to the Proposed Development, and so no surveys for this species will be carried out.

5.5.5 Reptiles

The four common and widespread species of British reptile (i.e. grass snake, adder, common/viviparous lizard and slow-worm) are protected from deliberate harm by the Wildlife and Countryside Act 1981 (as amended). Specially protected reptile species (i.e.

[19] Rodwell, J. S. et seq. (1992) British Plant Communities Vols 1–5, Cambridge University Press: Cambridge
[20] Connor, D. W., Allen, J. H., Golding, N., Howell, K. L., Lieberknecht, L. M., Northern, K. O. and Reker, J. B. (2004) *The Marine Habitat Classification for Britain and Ireland* Version 04.05 JNCC, Peterborough. ISBN 1 861 07561 8 (internet version)
[21] English Nature (2001) Great crested newt mitigation guidelines. Peterborough: English Nature

smooth snake and sand lizard) are not known to occur in the region. Habitats will be assessed for their potential to support reptiles and appropriate avoidance or mitigation (during construction) will ensure that high-value habitats (such as field drains) are not adversely affected by the Proposed Development. Detailed reptile surveys are considered unnecessary since habitat losses from the Proposed Development are likely to be limited mainly to arable land and careful planning and mitigation can avoid adverse effects to these species.

5.5.6 Bats

All British bats receive full protection under the Wildlife and Countryside Act 1981 as well as strict protection under the Conservation of Habitats and Species Regulations 2010 (the 'Habitat Regulations') as a European protected species. Seven bat species are UKBAP priorities and 11 are LBAP priorities.

A suite of bat surveys will be conducted with reference to Natural England[22], and Bat Conservation Trust (BCT)[23,24] guidelines. Based on the Site location, general habitat composition and nature of the Proposed Development, an assessment against Bat Conservation Trust guidelines[25] was carried out and found to have a medium risk level and thus should be subject to the following surveys:

- Transect surveys – Transect routes, including sample points, will be designed to cover areas that are likely to offer good bat foraging, commuting or roosting potential, whilst also ensuring that open areas and the turbine envelope are also surveyed. Surveys will start 30 minutes before sunset and last approximately 2.5 hours and will be undertaken approximately monthly for a minimum of one full bat active season (seven months). Surveyors will record bat activity using suitable full spectrum ultrasound bat detectors. Recordings will be analysed using specialised call analysis software.
- Remote monitoring – Remote recording will be undertaken using AnaBats (or similar) deployed for up to seven separate survey periods and positioned at various locations across a range of habitat types, including those indicative of turbine locations. The remote detectors will be set to record from approximately half an hour before sunset until approximately half an hour after sunrise.
- Roost assessment – Data searches will be conducted to identify confirmed and potential roost sites (as well as other records of bat activity) within 10 km of the Proposed Development. In addition, potential bat roosts within 200 m of possible turbine locations will be identified by daytime walkover surveys and external visual assessments[26]. Further detailed surveys (e.g. dusk emergence / dawn return) will be carried out to establish roost use and commuting routes associated with any high-risk features.

5.5.7 Badger

Badgers receive protection under the Protection of Badgers Act 1992. All areas within the site boundary will be surveyed for evidence of badgers as part of the extended Phase 1 habitat survey following standard methods to record field signs and describe setts[27],[28]. Search effort will concentrate on areas in which ground works are most likely.

[22] Natural England (2014) Bats and Onshore Wind Turbines 3rd Edition. Natural England, Peterborough.
[23] Bat Conservation Trust (2007) Guidelines for Bat Surveys. BCT: London
[24] Hundt, L. (ed.) (2012) Bat Surveys: Good Practice Guidelines (2nd Edition).
[25] Hundt, L. (ed.) (2012) Bat Surveys: Good Practice Guidelines (2nd Edition).
[26] Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. English Nature.
[27] Neal, E.& Cheeseman, C. (1996) Badgers . Christopher Helm: London.
[28] Harris, S., Cresswell, P.& Jeffries, D.(1991) Surveying for Badgers.Mammal Society.

5.5.8 Water Vole

Water vole receives full protection under the Wildlife and Countryside Act 1981 (as amended) and is a UKBAP and LBAP priority species. Surveys for evidence of water vole will be undertaken along the margins of potentially suitable aquatic habitat features (particularly the network of field drains) in accordance with standard methods[29].

5.5.9 Otter

Otter receives full protection under the Wildlife and Countryside Act 1981 as well as strict protection under the Conservation of Habitats and Species Regulations 2010 (the 'Habitat Regulations') as a European protected species. Otter is also a UKBAP and LBAP priority species and a qualifying feature of The Wash and North Norfolk Coast SAC. Surveys for evidence of otter will be undertaken in potentially suitable habitats in accordance with standard methods[30].

5.5.10 Marine Mammals

Common seal and grey seal are UKBAP and LBAP priorities, and common seal is a primary qualifying feature of The Wash and North Norfolk Coast SAC. Surveys of the nearby seal populations in their haul-out areas are considered unnecessary since they are already closely monitored and existing data will be used to inform the assessment, although it is considered that a sensitive layout and construction programme will avoid effects on these species.

5.6 Ecological Assessment

Information from the above survey work will be analysed and collated into technical reports detailing the baseline conditions at the site. The reports will include, as appropriate, data appendices, figures and confidential annexes. The assessment of potential effects on ecological interests will follow guidelines published by the Institute of Ecology and Environmental Management (IEEM) (2006)[31] and will take into account the considerations of national legislation and planning policy and the aims of the European Habitats Directive. The assessment will include proposals for the avoidance and mitigation of potentially adverse effects and will consider enhancement measures to increase biodiversity in the area. Potential cumulative ecological effects with other nearby developments will also be assessed.

[29] Strachan, R. (1998) The Water Vole Conservation Handbook, Wildlife Conservation Research Unit, University of Oxford

[30] Chanin, P. (2003) Monitoring the Otter Lutralutra.Conserving Natura 2000 Rivers. Monitoring Series No. 10. English Nature, Peterborough.

[31] IEEM (2006) Guidelines for Ecological Impact Assessment in the United Kingdom. IEEM

6 ORNITHOLOGY

6.1 Introduction

The Royal Society for the Protection of Birds (RSPB) considers climate change to be the greatest threat to bird life and therefore supports the development of wind farms in appropriate locations[32]. The RSPB states that the available evidence shows that appropriately located wind farms do not pose a significant hazard for birds, although poorly sited wind farms can have adverse impacts on birds as a result of disturbance, habitat loss/damage or collision with the turbines. The potential for such impacts must be determined by a rigorous programme of survey and assessment.

Ornithological impact assessment commonly forms one of the key components of the EIA process and this has led to the publication of a number of bird/wind farm guidance documents.

The ornithological impact assessment will take accord of such 'best practice' documents and in particular, the following publications and guidelines:

- Band, W., Madders, M. and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: Birds and Wind Farms: Risk Assessment and Mitigation. de Lucas, M, Janss, G. and Ferrer, M. (eds). Lynx Edicions, Barcelona;
- Natural England (2010) Assessing the effects of onshore wind farms on birds. Natural England Technical Information Note TIN069;
- Scottish Natural Heritage (2005 updated 2010). Survey methods for use in assessment of the impacts of proposed onshore wind farms on bird communities;
- Scottish Natural Heritage (2013). Recommended bird survey methods to inform impact assessment of onshore wind farms;
- Scottish Natural Heritage (2006). Assessing significance of impacts from onshore wind farms on birds outwith designated areas; and,
- Scottish Natural Heritage (2010). Use of Avoidance Rates in the SNH Wind Farm Collision Risk Model.

Initial consultations regarding the scope of works have been carried out with Natural England and further consultation will be conducted with all relevant bodies through the duration of the ornithological assessment. These will include Natural England, Royal Society for the Protection of Birds (RSPB), Lincolnshire Wildlife Trust (LWT), Lincolnshire Bird Club and British Trust for Ornithology (BTO).

6.2 Background and Development of the Wind Farm Layout

The initial proposal for this site was for up to 12 turbines; this was the turbine layout presented in preliminary consultations held with Natural England in May 2012 and the Scoping report issued in July 2012. After the completion of the first year of ornithology surveys (October 2011-November 2012) the turbine number was revised down to between 7 and 9 turbines in light of the identification of ornithological constraints. Further consultation was carried out with Natural England (via the Discretionary Advice Service scheme) in August 2013 where ornithological constraints were clarified and discussed further (e.g. disturbance/ displacement buffers from nests, roost sites, key foraging areas etc.). At this point the scheme was revised to up to 7 turbines.

Based on the data gathered during Year 2 surveys (November 2012-November 2013), and the constraints identified as a result of this data, in combination with results from Year 1, the scheme was further revised to a scheme comprising up to 5 turbines. The 5 turbine layout has been designed with mitigation for potential effects 'built in' wherever possible

[32] RSPB (2010) Wind farms and birds. RSPB, Sandy.

by avoiding habitats of high value to breeding and non-breeding birds and key ecological receptors (e.g. for nesting, foraging, roosting etc.). This 'embedded mitigation' has been integral to the design layout and is outlined below:

- Exclusion of development within land ownership adjacent to The Wash SPA to reduce potential impacts to designated site;
- Hard-constraint 600 m buffer between The Wash SPA and turbines; and,
- Access tracks to follow the routes of existing farm tracks, drain crossings and gateways thus minimising habitat loss and disturbance, except where this would have led to increased effects on other sensitive receptors.

6.3 Statutory Designated Sites

There is one Special Protection Area (SPA) and Ramsar site within 20 km of the potential turbine area: The Wash SPA and Ramsar Site. There is one Site of Special Scientific Interest (SSSI) and one National Nature Reserve (NNR) with ornithological interest within 5 km of the potential turbine area: The Wash SSSI and NNR. There are no Local Nature Reserves (LNR) of ornithological value within 5 km of the Proposed Development. These sites are shown on Figure 3.

Qualifying species for The Wash SPA include (breeding) marsh harrier, little tern and common tern, (wintering) avocet, bar-tailed godwit, golden plover, whooper swan, black-tailed godwit, curlew, 'dark-bellied' brent goose, dunlin, grey plover, knot, oystercatcher, pink-footed goose, pintail, redshank, shelduck and turnstone, and (passage) ringed plover and sanderling. In addition, the SPA also qualifies by regularly supporting an assemblage of approximately 400,000 waterfowl.

The Wash supports an internationally important assemblage of breeding, passage and wintering birds, many of which are also dependent on areas outside the SPA boundary which may result in connectivity between the SPA birds and the Proposed Development site. The ES will provide sufficient information to enable the competent authority to undertake an Appropriate Assessment should this be required under the Habitats Regulations.

The Wash Ramsar Site citation species include (spring/autumn passage) oystercatcher, grey plover, knot, sanderling, curlew, redshank and turnstone (wintering) pink-footed goose, 'dark-bellied' brent goose, shelduck, pintail, dunlin, and bar-tailed godwit. The following species are noted within the citation as potential future inclusions: (passage) ringed plover and black-tailed godwit and (winter) golden plover and lapwing. The Ramsar Site also supports an assemblage of approximately 292,000 waterfowl.

The Wash SSSI and NNR represents one of Britain's most important winter feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependent on the rich supply of invertebrate food. Mature saltmarsh is a valuable bird breeding zone.

6.4 Baseline Bird Surveys

Field studies to provide a baseline from which to assess the potential effects of the Proposed Development on birds commenced in October 2011 and were completed in November 2013. All surveys have been designed with reference to Natural England (NE) and Scottish Natural Heritage (SNH) guidance, the prevailing best-practice guidance at the time of the surveys and through consultation with Natural England.

6.4.1 Flight Activity Survey

Vantage point (VP) watches were undertaken using the standard methodology (as presented in Natural England 2010 and SNH 2005, updated 2010), providing data for the assessment of the flight activity and collision risk of target species: Annex 1/Schedule 1

raptors and owls, all wildfowl and all waders and herons. Secondary species included all other raptors and all gull species.

The main purposes of VP watches were to:

- Collect flight activity data on target species to enable estimates to be made of the collision risk presented by the Proposed Development and to identify the relative use of different parts of the survey area; and
- Calculate an index of flight activity for other species (secondary species) using the survey area.

Four vantage points were selected to provide excellent visual coverage of the potential turbine area and surrounding land. Over the two years of flight activity surveys the following hours of observation were carried out from each vantage point location; VP 1: 346 hours, VP 2: 345.5 hours, VP 3: 345 hours, and VP 4: 339 hours. A seasonal breakdown of survey effort is provided in Table 6.1 (Year 1) and Table 6.2 (Year 2).

Table 6.1: VP breakdown (hours per season) Year 1

VP	Autumn 1	Winter 1	Spring 1	Summer 1	Autumn 2
1	19.5	63	36.5	54	69
2	19.5	62.5	36	54	69
3	19.5	60.5	36	54	69
4	14	60	36	54	69

Table 6.2: VP breakdown (hours per season) Year 2

VP	Winter 2	Spring 2	Summer 2	Autumn 3
1	54	48	81	59
2	54	50	83	59
3	56	48	81	59
4	56	48	81	59

Surveys were carried out at various times of day throughout the two years of surveying, ensuring that all times between dawn and dusk were sampled to account for behavioural changes that may occur at different times of day through the breeding and non-breeding seasons. Surveys were undertaken across a range of tidal states and in a variety of weather conditions, but only during conditions of at least moderate visibility (>1 km). The weather conditions during each watch were recorded hourly. Watches usually comprised two or three sessions of two or three hours duration separated by a break of 15-30 minutes in order to avoid observer fatigue.

For each target species flight the following details were recorded:

- Number of birds;
- Time;
- Duration of flight within the survey area;
- Species, age and sex (when identification of age and/or sex was possible); and
- Flying height in three height bands corresponding approximately to below, at or above Rotor Swept Height (RSH) (0–25 m, 25–125 m[33] and >125 m) per 15 second interval. This was increased in March 2011, until the completion of flight activity surveys in November 2013, to four height bands: 0-25 m, 25-125 m, 125-140 m and

[33] Potential Rotor Swept Height (RSH) included a buffer above and below the highest and lowest sweep of the rotors to allow for some error in height recording.

>140 m per 15 second interval in order to optimise the survey for the proposed turbine dimensions.

The flight path of each target species recorded was drawn as accurately as possible on to a large scale map in the field. Each recorded flight path was numbered and cross-referenced to the flight data.

Secondary species were recorded in 5-minute summaries. During each 5-minute period of the watch, the minimum number of each species attributable to the flight activity observed was recorded, including details of the height band (below, at or above RSH) and location of the birds (over potential turbine area, in 500 m buffer zone, or beyond 500 m buffer zone).

All flight activity data collected was inputted into a MS Access database and flight lines were digitised in a Geographical Information System (GIS) to allow collision risk to birds present in each season to be calculated.

Collision risk modelling, where required, will follow the method presented by Band *et al*.

6.4.2 Passage and Winter Through-the-tide-cycle Survey

Diurnal through-the-tide (i.e. high-tide and low-tide) surveys were carried out within 1 km of the potential turbine area (where accessible) monthly between November 2011-May 2012, and twice-monthly August 2012 and May 2013, and July and October 2013 inclusive to assess diurnal waterfowl feeding and roosting patterns during the winter, spring passage and autumn passage periods.

Although waterfowl were the key species of interest, other species of conservation concern (e.g. Schedule 1/Annex 1 raptors and owls, UK BAP species and UK Red List) were also recorded at this time.

6.4.3 Raptor Roost Survey

Dusk raptor roost surveys were carried out monthly in Year 1 between October 2011 and March 2012 within the potential turbine area and immediate surrounding area in order to record any raptor/owl roost sites within the survey area. The purpose of the survey was to map the roost site of non-breeding birds of prey in order to allow the assessment of potential displacement effects.

Dawn and dusk raptor roost flight activity surveys were carried out in Year 2 between September 2012 and March 2013 inclusive. A minimum of 36 hours was carried out from each of three vantage points following recommended guidance and based on discussions held with Natural England. VP methodologies and recording followed that described in Section 6.2.1; however the main focus of the surveys was observing marsh harrier and hen harrier coming into/leaving roost sites identified during Year 2 surveys, or during the Year 1 raptor roost surveys outlined above during the dawn and dusk period.

6.4.4 Goose/Swan Survey

Drive-round and walkover surveys of the areas within 2 km of the potential turbine area were carried out frequently across the winter (November 2012 and March 2013) and autumn (September and October 2013) period to record field use by foraging geese and swans.

6.4.5 Nocturnal Foraging/Roosting Survey

Drive-round and walkover surveys of the areas within 500 m of the potential turbine area were carried out utilising infra-red optics. Surveys were carried out monthly between August 2012 and May 2013 and August and November 2013. Key species forming the focus

of the survey included wildfowl and waders, although other species of note (e.g. owls) were also recorded.

6.4.6 Breeding Bird Survey

A breeding bird survey following the Common Birds Census[34] (CBC) method of territory mapping was carried out (where accessible) within 800 m of the potential turbine area. CBC territory mapping is considered the most practical method to accurately determine the numbers and distribution of breeding birds present within this survey area. Eight visits were made between April and July 2012 inclusive, and six visits were made between April and July 2013.

6.4.7 Breeding Raptor and Owl Survey

Breeding raptor surveys were conducted between April and July in 2012 and 2013. Raptor surveys were carried out within 2 km of the potential turbine area, breeding owl surveys within 1 km, to locate occupied territories for species including marsh harrier, Montagu's harrier and barn owl. Survey methods followed guidance within Hardey *et al*. (2009)[35] and surveys were conducted by a Schedule 1 licence holder where necessary. Common raptors such as kestrel, sparrowhawk and buzzard were also recorded at this time where present.

6.5 Ornithological Impact Assessment

The ornithological assessment will follow the same principles as the ecology assessment. Information from the above survey work will be analysed and collated into technical reports detailing the baseline conditions at the proposed development site. The reports will include, as appropriate, data appendices, figures and confidential annexes. The assessment of potential effects on ornithological interests will follow guidelines published by the Institute of Ecology and Environmental Management's (IEEM, 2006[36]) *Guidelines for Ecological Impact Assessment in the United Kingdom*. These guidelines set out the process for assessment through the following stages:

- Describing the ecological baseline through survey and desk study.
- Determining the value of ecological receptors. Ecological value is defined on the basis of the geographic scale and only receptors with at least local value will be considered as Valued Ecological Receptors (VERs) in the assessment. Note that some receptors, such as legally protected species, may be of insufficient ecological value to warrant consideration within the EcIA, but instead will be considered in the context of legal and policy implications.
- Identifying and characterising the potential effects on VERs. Potential ecological effects will be described by their Magnitude, Extent, Duration, Reversibility, Timing and Frequency, and Direction of Change. One or more of these variables will be assessed in light of a receptor's baseline condition and with regard to its ecological sensitivity.
- Determining the significance of effects in the absence of mitigation. A significant effect, in ecological terms, is defined as an effect on the integrity of a defined site, ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. The approach will determine whether an effect is significant or not significant on the basis of a discussion of the variables that characterise it. The significance of an effect is linked to the geographical scale at which the receptor is valued but may manifest at a lower geographic scale and does not depend on its legal protection.

[34] Marchant, J. (1983) Common Bird Census Instructions. British Trust for Ornithology, Thetford.
[35] Hardey, J., H. Q. P. Crick, C. V. Wernham, H. T. Riley, B. Etheridge, and D. B. A. Thompson. 2009. Raptors: a field guide to survey and monitoring. Second Edition. The Stationary Office Ltd, Edinburgh.
[36] IEEM (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom*.

- Describing mitigation, compensation, enhancement and monitoring measures associated with the Development. Any significant effects remaining after mitigation ('residual effects') are the factors to be considered against legislation, policy and development control in determining the application.

7 HYDROLOGY

7.1 Introduction

A hydrological and hydrogeological assessment will be undertaken in order to establish the baseline conditions and assess the potential effects of the Proposed Development, their significance and the potential for mitigation.

7.2 Baseline

A review of available mapping data for the Site shows no named watercourses on the Site, however there are a number of drainage ditches.

Surveys will include an appraisal of ground conditions, a survey of on-site and downstream hydrological processes, a record search and a desk-top study. They will cover geology, hydrogeology, aquifer classification, vulnerability, water quality, rivers and river classification, coastal hydrology and surface deposits.

Efforts will also be made to identify and assess the potential risk to any public and private water supplies and any known fisheries resources.

Using the Environment Agency flood risk map[37] , it has been identified that the Proposed Development lies within Flood Zone 3 (FZ3), an area described as having a "high probability" of flooding in Table 1: Flood Zones of the "National Planning Practice Guidance to the National Planning Policy Framework"[38] document ("NPPG"). Although the site does benefit from flood defences, a full flood risk assessment will be undertaken in accordance with the NPPG.

Appropriate maps and existing records will be referenced including, the British Geological Survey (BGS) Geoscience Data Index, the Hydrological Map of England, and groundwater vulnerability maps. The Environment Agency, the local authority, and the local water authority will also be contacted to obtain further surface and groundwater data. If necessary to inform the assessment of likely significant effects, field surveys or flow measurements will be undertaken.

A desktop assessment of ground conditions will be conducted as part of the EIA. Any requirement for further surveys will be identified as part of this assessment.

7.3 Methodology

7.3.1 Assessment of the Development in Isolation

The significance of the potential effects of the Proposed Development will be classified by taking into account the sensitivity of receptors (such as groundwater, surface water *etc*.) and the magnitude of the potential effect on them (such as sedimentation), combined with the likelihood of an event occurring.

The sensitivity of the receptor is defined as its ability to absorb an effect without perceptible change and can be classified as either none (if the receptor is not present within the study area), low, moderate or high. These classifications are dependent on factors such as the quality of the subsurface water within the receptor, its purpose (e.g., whether used for drinking, fisheries, *etc.*) and existing influences, such as land use.

[37] The Environment Agency Flood Map [online] Available at: http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=floodmap#x=357683&y=355134&scale=2 (Accessed 13/03/2012).
[38] Department for Communities and Local Government (DCLG) (2014). "National Planning Practice Guidance" [online] Available at: http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/ [Accessed 30/05/2014].

The magnitude of any potential effect is determined by the timing, scale, size and duration of the potential effect resulting from the Proposed Development. The magnitude of potential effects is classified as negligible, minor, moderate or major.

An effect is considered to be significant if assessed as moderate or major in accordance with The Town and Country Planning (Environmental Impact Assessment) Regulations (2011) (the 'EIA Regulations')[39].

A Water Construction Management Plan (WCMP) will be produced to be included as part of the embedded design of the Proposed Development. The WCMP will comprise methods and works that are established and effective measures, based on CIRIA guidance, to which the Developer will be committed through the Development consent. Accordingly, the assessment of significance of effects of the Proposed Development will be considered based on the inclusion of the WCMP as part of the Proposed Development.

7.3.2 Assessment of Cumulative Effects

The methodology for assessing potential cumulative impacts reflects that which will be used for the Proposed Development in isolation.

A cumulative effect is considered to be an additional effect on hydrological resources arising from the Proposed Development in combination with other proposed developments (either under construction, consented but not built, or at application stage) that require large excavations likely to affect the hydrological environment. At distances greater than 10 kilometres (km), or in different hydrological and hydrogeological catchments, as defined by GIS mapping or the EA SPZ Maps, it is considered that schemes are unlikely to contribute to a cumulative hydrological effect due to attenuation and dilution over distance of potentially polluting sediments and/or chemicals.

[39] The Town and Country Planning (Environmental Impact Assessment) Regulations (2011).

8 CULTURAL HERITAGE AND ARCHAEOLOGY

For the purposes of the assessment cultural heritage interests are deemed to include both above ground (the built heritage) and below ground remains. The assessment will consider both direct and indirect (largely visual) effects upon the following cultural heritage receptors:

- Archaeology – above and below ground, designated or not. Consideration will be given to the potential for currently unknown (buried) archaeological remains to exist within the site; and
- World Heritage Sites, Listed Buildings, Registered Historic Parks and Gardens, Registered Battlefields and Conservation Areas.

8.1 Desk Based Assessment

A desk based assessment of cultural heritage records will be carried out in order to establish the baseline against which the impact assessment will be carried out. Data will be gathered from the following sources:

- Lincolnshire Historic Environment Record;
- Aerial records of known sites and monuments;
- OS 1st Edition 6" map coverage;
- Aerial photographs and other cartographic information on pre-recent land uses;
- National Monuments Records; and
- Local Studies libraries and other archives as appropriate.

A study area of 1 km around the site boundary will be used to collect data to inform the assessment of the physical and ground-based archaeological potential of the site. For the purposes of wider visual assessment, data on nationally designated cultural heritage features will be collected to a maximum of 15 km from the potential turbine area.

8.2 Preliminary Findings

Initial information relating to cultural heritage and archaeology has been gathered through a preliminary desk top search to identify potential features of interest.

There are no Scheduled Monuments within the potential turbine area, however there are two within a 5 km radius; these are detailed in Table 8.1 below and shown on Figure 4.

Table 8.1: Scheduled Monuments within 5 km of the Potential Turbine Area

National Heritage List Entry Number	Scheduled Monument Name	Approximate Distance and Direction from the Potential Turbine Area
1010678	Churchyard Cross, All Saints' Churchyard	3.5 km SWW
1018584	Multon Hall moated site	3.5 km NW

There are 22 Listed Buildings within 5 km of the potential turbine area, all of which are Grade II listed. Only one lies within 2 km, Leaden Hall, a Grade II Listed Building situated approximately 1.7 km south of the potential turbine area at the southern extent of the site boundary.

There are 2 Registered Parks and Gardens within 15 km of the potential turbine area, these are detailed below and shown on Figure 3 of Appendix 1.

Table 8.2: Registered Historic Parks and Gardens within 15 km of the Potential Turbine Area

National Heritage List Entry Number	Registered Historic Park and Garden Name	Grade	Approximate Distance and Direction from the Potential Turbine Area
1000935	Boston Cemetery	II	11 km NNW
1000969	Ayscoughfee Hall	II	14 km SW

8.3 Walkover Survey

The desk based assessment will be supplemented by a walkover survey to provide information on the archaeological potential of the area, and to validate the documentary evidence. This fieldwork will be conducted to:

- Assess and validate documentary data collected;
- Identify the extent and condition of any visible archaeological remains; and
- Determine whether previously unrecorded historic features are visible.

Subject to the findings of the desk-based assessment the requirement for and extent of any additional surveys will be agreed in consultation with the archaeologist at Lincolnshire County Council.

8.4 Assessment

An assessment will be made of the potential indirect effects upon cultural heritage features, including historic landscapes, by changes to their settings. The assessment will be accompanied with appropriate illustrative materials, the extent and scope of which will be agreed during consultation.

The assessment will be supported by presentation of the data in assessment tables, with a gazetteer and location plan. The Cultural Heritage and Archaeology chapter will also include proposals for mitigation of any identified impacts where necessary.

9 NOISE

9.1 Introduction

Sources of noise during operation of a wind turbine are both mechanical (from machinery housed within the turbine nacelle) and aerodynamic (from the movement of the blades through the air). Modern turbines are designed to minimise mechanical noise emissions from the nacelle through isolation of mechanical components and acoustic insulation of the nacelle. Aerodynamic noise is controlled through the design of the blade tips and edges. In most modern wind turbines, aerodynamic noise is also restricted by control systems which actively regulate the pitch of the blades.

While noise from the wind turbines does increase with wind speed, at the same time ambient background noise (for example wind in trees) usually increases at a greater rate. Planning conditions are used to enforce compliance with specified limits.

The effects of noise from the Proposed Development will be assessed in consultation with the Environmental Health Department of SHDC.

9.2 Construction Noise Limits

The following legislation and standards are of particular relevance to construction noise:

- The Control of Pollution Act 1974 (CoPA 1974);
- The Environmental Protection Act 1990 (EPA 1990); and
- BS 5228:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites.

CoPA 1974 provides Local Authorities in England, Scotland and Wales with powers to control noise and vibration from construction sites. Section 60 of the Act enables a Local Authority to serve a notice to persons carrying out construction work of its requirements for the control of site noise. Section 61 of the Act allows for those carrying out construction work to apply to the Local Authority in advance for consent to carry out the works.

The EPA 1990 specifies mandatory powers available to Local Authorities in respect of any noise that either constitutes or is likely to cause a statutory nuisance, which is also defined in the Act. A duty is imposed on Local Authorities to carry out inspections to identify statutory nuisances, and to serve abatement notices against these. Procedures are also specified with regards to complaints from persons affected by a statutory nuisance. BS 5228 provides guidance on controlling noise and vibration from construction sites. It:

- Refers to the need for the protection against noise and vibration of persons living and working in the vicinity of and those working on construction sites;
- Recommends procedures for noise and vibration control in respect of construction operations; and
- Stresses the importance of community relations, stating that early establishment and maintenance of these relations throughout the carrying out of site operations will go some way towards allaying people's concerns.

The acceptability of construction noise is likely to be affected by the location of the Development site relative to the noise sensitive premises; existing ambient noise levels; the duration and working hours of site operations; the characteristics of the noise produced and the attitude of local residents to the site operator.

9.3 Operational Noise Limits

9.3.1 The Assessment and Rating of Noise from Wind Farms (ETSU-R-97)

The assessment methodology for operational noise is described in ETSU-R-97 *'The Assessment and Rating of Noise from Wind Farms'*. The basic aim of ETSU-R-97 is to provide:

"*Indicative noise levels thought to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers or local authorities*".

The report makes it clear from the outset that any noise restrictions placed on a Development must balance the environmental impacts of the Development against the national and global benefits which would arise through the development of renewable energy sources.

The specific methodologies involved in applying ETSU-R-97 to a proposed new development will be detailed in full in the ES but, in summary, these provide recommendations for noise limits relating to the existing levels of background noise for quiet day-time and night-time periods.

To carry out a noise assessment in accordance with ETSU-R-97, the following steps are required:

- Specify the number and locations of the wind turbines;
- Identify the locations of the nearest, or most noise sensitive, neighbours;
- Determine the background noise levels as a function of site wind speed at the nearest neighbours, or a representative sample of the nearest neighbours;
- Determine the quiet day time and night time criterion curves from the background noise levels identified at the nearest neighbours;
- Specify the type and noise emission characteristics of the wind turbines proposed for the site;
- Calculate the noise immission[40] levels due to the operation of the wind turbines as a function of site wind speed at the nearest neighbours; and
- Compare the calculated noise immission levels with the derived criterion curves and assess in the light of relevant planning requirements.

A baseline noise survey will be carried out at properties situated close to the site, access permitting. Suitable locations will be selected by identifying those properties that are likely to be subject to noise levels in excess of the most stringent limit specified in ETSU-R-97 of 35 dB, $L_{A90,10min}$, and in consultation with SHDC. The Development layout and turbine selection will be subject to on-going assessment, and if necessary modified during the design process to ensure the Development will comply with the requirements of ETSU-R-97.

9.3.2 Good Practice Guide to the Application of ETSU-R-97 for Wind Turbine Noise Assessment

The Good Practice Guide (GPG) was published by the Institute of Acoustics (IOA) in May 2013 and has been endorsed by the Scottish Government as current industry good practice. The guide presents current good practice in the application of ETSU-R-97 assessment methodology for wind turbine developments at the various stages of the assessment, divided into the main steps which should be followed in an assessment of wind turbine noise. These steps are:

[40] 'Immission' refers to the noise at a receiver location, whereas 'emission' relates to noise produced by a source.

9.3.2.1 Determine a Study Area

The guide specifies that the study area for background noise surveys should be the area within which noise levels from the proposed, consented and existing wind turbines may exceed 35 dB, $L_{A90,10min}$ at up to a wind speed of 10 ms^{-1}. Properties predicted to experience noise levels below this value are considered to be compliant with the ETSU-R-97 simplified assessment methodology, with no assessment against background noise required.

9.3.2.2 Identify Potentially Affected Receptors

Of the properties identified within the study area, the GPG states that background noise monitoring locations should be selected on the basis of professional judgement, with the objective of collecting sufficient data to enable the background noise levels at each noise sensitive receptor to be characterised.

Guidance is given on the number and position of monitoring locations, and the selection of representative locations where a number of properties are present. It is highlighted that when choosing a location that will serve as a proxy for others, it must be reasonably considered to be representative of the non-surveyed locations.

9.3.2.3 Undertaking a Background Noise Survey

The GPG provides information on the duration and timing of surveys, the type of noise measuring equipment to be used, the siting of noise monitoring equipment, the measurement of wind speeds and rainfall, and the synchronisation of noise, wind and rainfall measurements.

This advice supports the advice contained within ETSU-R-97 with regard to such matters, and offers additional clarity where appropriate.

With specific regard to the measurement of wind speeds, the GPG recommends that rather than correlating measured background noise levels measured at 10 m AGL, as recommended by ETSU-R-97, measured background noise levels are correlated against wind speeds at 10 m AGL that have been standardised using a ground roughness length (z_o) of 0.05 m from wind speeds at hub height. This process allows for the effects of variations between the wind shear characteristics of the site of the proposed turbine and the site on which noise emissions were measured to be eliminated and ensures that both background noise and turbine noise levels are correlated with the factor which controls the noise emissions of the turbines (hub height wind speeds) whilst maintaining consistency with the 10 m wind speed reference specified in ETSU-R-97.

Wind speeds may be measured directly at hub height, or derived from measurements made at two lower heights. These are used to calculate the wind shear exponent for each measurement, this exponent is used to calculate hub height wind speeds, and then standardised to 10 m wind speeds calculated as described above.

9.3.2.4 Analysis of Data

Data resulting from the background noise survey is analysed in order to determine a representative background level across a range of wind speeds during quiet daytime and night-time periods which can be used to define appropriate noise limits for a proposed wind energy development.

Data is filtered into quiet daytime (amenity) and night time hours. Periods affected by rainfall, and any atypical events such as the dawn chorus or noise from water features/pumps, etc., are removed.

Advice is provided with regard to traffic noise, wind speed, directional analysis and a limited data range, to ensure prevailing background noise levels are a typical representation of the existing noise environment, and provides advice on the analysis of background noise data

which may be affected by existing wind turbines, where relevant. The relationship between wind speed and background noise established for each location though the production of a scatter-plot, showing noise level against standardised wind speed for each valid data point, and a 'best fit' trendline is applied to determine the prevailing background noise level from which noise limits are established. The trendline may be a linear, or polynomial (up to 4th order) fit; the selection of trendline is subject to professional judgement with the intention being to allow a reasonable representation of the prevailing background noise levels at that location during the survey period.

9.3.2.5 Prediction of Wind Turbine Noise

ETSU-R-97 does not describe a method to predict the immission levels at the nearest residential properties resulting from the operation of the wind farm. The GPG does however provide a summary of various studies on the prediction and propagation of wind turbine noise and recommends the use of the ISO 9613-2[41] method in calculating the levels of wind turbine noise at receptor locations (immission levels).

The ISO 9613-2 method predicts noise levels at the receptor by taking the octave-band sound power level spectrum of the source, and applying a number of attenuation factors that determine the resulting sound pressure level.

Noise predictions will be made using the ISO 9613-2 noise model, taking account of the attenuation factors recommended in the GPG. The specific data and parameters recommended in the GPG are summarised below:

- The turbine sound power levels should be stated and these should include an appropriate allowance for measurement uncertainty. If the data provided contains no allowance for measurement uncertainty, or uncertainties are not provided, an additional 2 dB should be included;
- Atmospheric conditions of 10°C and 70% relative humidity;
- The ground factor assumed should be G=0.5 (mixed ground);
- A receiver height of 4.0 m;
- Barrier attenuation should not be included, unless there is no line of sight from the receptor, in which case a 2 dB barrier effect may be included;
- An additional 3 dB should be added to noise immission levels at properties located 'across a valley' or with heavily concave ground between the property and the wind turbine(s); and
- The predicted noise levels ($L_{Aeq,t}$) may be converted to the required $L_{A90,10min}$ by subtracting 2 dB.

ISO 9613-2 provides a prediction of noise levels likely to occur under worst-case conditions; those favourable to the propagation of sound, i.e. down-wind or under a moderate, ground-based temperature inversion as often occurs at night (often referred to as stable atmospheric conditions). The specific measures recommended in the GPG have been shown to provide good correlation with levels of wind turbine noise measured at operational wind farms[42].

9.3.2.6 Cumulative Assessment

ETSU-R-97 and the GPG state that the noise limits that it recommends apply to the cumulative effect of noise from all wind turbines that may affect a particular location. Therefore a search will be undertaken, in consultation with SHDC, to identify any wind

[41] ISO 9613-2:1996 Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: General Method of Calculation.
[42] Bullmore et al. (2009). Wind Farm Noise Predictions and Comparison with Measurements, Third International Meeting on Wind Turbine Noise, Aalborg, Denmark 17 – 19 June 2009.

energy developments either operational, consented or in planning which may require consideration in the assessment process.

9.3.3 Low Frequency Noise and Infrasound

A study[43], published in 2006 by acoustic consultants Hayes McKenzie on the behalf of the DTI, investigated low frequency noise from wind farms. This study concluded that there is no evidence of health effects arising from infrasound or low frequency noise generated by wind turbines, but that complaints attributed to low frequency noise were in fact, possibly due to a phenomenon known as Amplitude Modulation (AM).

Further, in February 2013, the Environmental Protection Authority of South Australia published the results of a study into in infrasound levels near wind farms[44]. This study measured infrasound levels at urban locations, rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organised shut-downs of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive.

Bowdler *et al.* (2009)[45] concludes that:

"...there is no robust evidence that low frequency noise (including 'infrasound') or ground-borne vibration from wind farms generally has adverse effects on wind farm neighbours".

It is therefore not considered necessary to carry out specific assessments of low frequency noise or infrasound. However, further supporting information on these subjects will be provided in the ES.

9.3.4 Amplitude Modulation

In its simplest form, Amplitude Modulation, by definition, is the regular variation in noise level of a given noise source. This variation (the modulation) occurs at a specific frequency, which, in the case of wind turbines, is defined by the rotational speed of the blades.

There is a distinction between 'normal' AM of wind turbine noise, characterised as blade swish and increased AM, typically referred to as Enhanced AM (EAM) or Other AM (OAM). It should be noted that ETSU-R-97 describes and makes allowance for normal AM or blade swish.

A study[46] was carried out in 2007 on behalf of the Department for Business, Enterprise and Regulatory Reform (BERR) by the University of Salford, which investigated the incidence of noise complaints associated with wind farms and whether these were associated with AM. This report defined AM as aerodynamic noise from wind turbines with a greater degree of fluctuation than normal at blade passing frequency. Its aims were to ascertain the prevalence of increased AM (OAM) on UK wind farm sites, to try to gain a better understanding of the likely causes, and to establish whether further research into AM is required.

The study concluded that OAM has occurred at only a small number (4 of 133) of wind farms in the UK, and only for between 7% and 15% of the time. It also stated that, the

[43]The measurement of low frequency noise at three UK wind farms, Hayes Mckenzie, The Department for Trade and Industry, URN 06/1412, 2006.
[44] Environment Protection authority (2013) Infrasound levels near wind farms and in other environments [online] Available at: http://www.epa.sa.gov.au/xstd_files/Noise/Report/infrasound.pdf [Accessed 13/05/2014].
[45] Bowdler et al. (2009). Prediction and Assessment of Wind Turbine Noise: Agreement about relevant factors for noise assessment from wind energy projects. Acoustic Bulletin, Vol 34 No2 March/April 2009, Institute of Acoustics
[46] Research into aerodynamic modulation of wind turbine noise'. Report by University of Salford, The Department for Business, Enterprise and Regulatory Reform, URN 07/1235, July 2007.

causes of OAM are not well understood and that prediction of the effect is not currently possible.

This research has recently been supported by an in-depth study undertaken by Renewable UK[47], which has identified that many of the previously suggested causes of OAM have little or no association to the occurrence of OAM in practice. The generation of OAM is based upon the interaction of a number of factors, the combination and contributions of which are unique to each site. With the current state of knowledge, it is not possible to predict whether any particular site is more or less likely to give rise to OAM, and the incidence of OAM occurring at any particular site remains low, as identified in the University of Salford study. The report includes a sample planning condition to address AM, however that has not yet been validated or endorsed by Government.

It is therefore not considered necessary to carry out specific assessments of amplitude modulation. However, further supporting information on this subject will be provided in the ES.

[47] Wind Turbine Amplitude Modulation: Research to improve understanding as to its Cause and effects, Renewable UK, 2013

10 TRAFFIC AND TRANSPORTATION

A traffic and abnormal loads assessment will be undertaken to determine the most suitable route of turbine delivery to the Proposed Development and site access point. Access to the Proposed Development is dependent on the point of origin of the turbine components, but consideration will be given to shipping components to a nearby port facility capable of handling them, to minimise road haulage requirements.

It is anticipated at this stage that abnormal loads would arrive at the port of Boston and travel south on the A16, south east on the A17 crossing Fosdyke Bridge and left onto Red Cow Drove. A right turn off Red Cow Drove onto Leadenhall Road leads to the western boundary of the site, where it is currently envisaged that the development site access point will be located. This will be subject to an assessment of weight restrictions and swept areas. The abnormal loads assessment will include consideration of alternative potential routes, in addition to the above route.

The EIA will include consultation with Highways Agency, the Local Highways Authority and other relevant bodies to ensure that there are no low bridges or weight restrictions along the route and to discuss the suitability of the proposed route(s). Assessment of effects will be based on collection of baseline data, the proposed access routes and calculation of increased road traffic whilst identifying receptors and their sensitivity. Assessment will include a swept-path analysis of pinch points to inform on the practicability of route options.

Methodology will follow the Guidelines for the Institute of Environmental Assessment's (IEA), Environmental Impact of Road Traffic[48]. Site visits will be undertaken to inspect existing access and the local road network, subject to a screening process using two broad rules outlined in the above guidelines to identify the appropriate extent of the assessment area. These are to ensure inclusion of:

- Highway links where traffic associated with the Proposed Development would increase the baseline traffic level by more than 30% (or where the number of Heavy Goods Vehicles will increase more than 30% as a result of the Proposed Development); and
- Any other specifically sensitive areas where traffic flow are predicted to increase by 10% or more as a result of the Proposed Development.

Peak traffic flows will be identified to assess a worst case scenario. Subject to the completion of this assessment, further consultation will be carried out with the Highways Authority and other relevant bodies as required. Assessment of driver distraction will be undertaken as appropriate.

It is not proposed to submit a formal Transport Assessment (TA) to accompany the planning application for the Proposed Development as TAs principally relate to developments that generate a significant permanent increase in traffic as a direct consequence of function, for example, retail parks.

[48] Institute of Environmental Assessment, (1993) Guidelines for the Environmental Assessment of Road Traffic, IEA

11 SOCIO-ECONOMICS, TOURISM AND RECREATION

A desktop socio-economic assessment will consider the potential direct and indirect effects of the Proposed Development. Various existing surveys and assessments of local socio-economic and visitor profiles, land-use and ownership, and public attitudes to wind farms will be collated to provide background information against which to assess the potential for significant effects.

In respect of recreation and access, consultations will take place to assess the effects to users of the public rights of way and national cycle network. This will include consultations with organisations including SHDC, the British Horse Society, Sustrans and other relevant organisations. Initial investigations indicate that the potential turbine area is bounded to the north and the south by bridleways which run along the sea bank and the old sea bank. National Cycle Route 1 passes approximately 700 m to the south west of the potential turbine area and the Macmillan Way long distance route passes approximately 500 m to the north west of the potential turbine area at the closest point.

The potential impact of the Development on tourism is closely related to the perception of wind farms by those visiting the area. In the United Kingdom there have been numerous surveys to assess the public's attitudes to wind farms which will be reviewed and incorporated into the ES. The general consensus of these surveys is that the majority of the general public believe that wind farm developments do not have a negative impact on their experience of an area; further detail on the findings of the surveys will be presented in the ES.

There are a number of visitor attractions in the area including Havenside Country Park and the market town of Holbeach. The visual effect on visitors at these and other attractions will be included within the landscape and visual assessment as outlined in Section 4 of this scoping report, with other aspects of effects on tourism assessed within the Socio-economics, Tourism and Recreation chapter of the ES.

Socio-economic effects will be considered based on the guidance from Guidelines for Environmental Impact Assessment[49] and a Handbook for EIA[50] and considered against:

- An economic profile of the area;
- Tourism and recreation;
- Land-use and ownership; and
- Public attitudes to wind farms.

[49] Institute of Environmental Management and Assessment (IEMA) (2004) *Guidelines for Environmental Impact Assessment*

[50] Scottish Natural Heritage (SNH) (2003) *A Handbook for Environmental Impact Assessment, Appendix 5: Guide to Outdoor Access Assessment,* SNH.

12 OTHER ISSUES

12.1 Shadow Flicker and Reflectivity

Planning Practice Guidance for Renewable and Low Carbon Energy (the Planning Practice Guidance)[51] was published by the Department for Communities and Local Government in 2014 to provide advice on the issues associated with the development of renewable energy in England.

The Planning Practice Guidance (replaces the previous Planning for Renewable Energy, 'A Companion Guide to Planning Policy Statement 22: Renewable Energy (PPS22)'[52]) describes the conditions in the UK under which flicker may occur and states:

"Only properties within 130 degrees either side of north, relative to the turbines can be affected at these latitudes in the UK – turbines do not cast long shadows on their southern side".

It is also known that the effect is most likely to occur within 10 rotor diameters of wind turbines. Online planning guidance for onshore wind (Scottish Government, 2013[53]) provides information for consideration surrounding shadow flicker. Although this guidance only applies in Scotland, it provides additional technical information on onshore wind power which is still applicable.

It states:

"where separation is provided between wind turbines and nearby dwellings (as a general rule 10 rotor diameters), "shadow flicker" should not be a problem."

An assessment will be undertaken to identify any potential shadow flicker effects in line with relevant guidance. Effects will be quantified using a computer model[54] during the EIA process and mitigation, if required, will be outlined.

Reflectivity is the potential for the sun to 'glint' off structures which, in the case of wind turbines, can be an intermittent glint when the turbines are rotating. This effect can be minimised by selecting a matt coating for the wind turbines, designed to reduce the potential for reflection.

12.2 Existing Infrastructure

Wind farms have the potential to interfere with electro-magnetic signals passing above ground or existing infrastructure buried below ground. Consultation with relevant infrastructure providers is a routine part of wind farm development. Consultees generally include:

- Civil Aviation Authority (CAA);
- Ministry of Defence (MOD);
- National Air Traffic Services (NATS);
- Television and telecommunications providers; and
- Water, gas and electricity utilities providers.

Early consultation with telecommunications and aviation operators has already commenced to identify any potential effects as a result of the Proposed Development. Information obtained from the consultees will be taken into account during the turbine layout design

[51] Department for Communities and Local Government (2013) Planning Practice Guidance for Renewable and Low Carbon Energy. Online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225689/Planning_Practice_Guidance_for_Renewable_and_Low_Carbon_Energy.pdf [Accessed on 13/05/2014]
[52] ODPM, (2004) 'Planning for Renewable Energy: A Companion Guide to PPS22', pp 177
[53] Scottish Government (2013) Onshore Turbines – online at: http://www.scotland.gov.uk/Topics/Built-Environment/planning/National-Planning-Policy/themes/renewables/Onshore [Accessed on 13/05/2014]
[54] ReSoft Ltd. "Windfarm" software, release 4.1.1.7.

process to avoid effects where possible. Any potential effects that remain following the design process will be eliminated by mitigation to be agreed with the relevant operators.

12.3 Carbon Dioxide Emission Displacement

A wind farm has the potential to make significant savings on greenhouse gas emissions.

The purpose of the Proposed Development will be to produce electricity from a renewable source, the wind, thereby displacing carbon dioxide (CO_2) and other greenhouse gas emissions that would occur through the production of the equivalent amount of electricity from fossil fuel sources. The EIA will consider the current electricity generation mix and assess the level of carbon dioxide (CO_2) savings that could potentially be made, depending on the source of electricity generation the wind farm is displacing at any given time.

13 PUBLIC CONSULTATION

The process of identifying environmental effects is both iterative and cyclical, running in tandem with the iterative design process. Consultation forms an integral role throughout the EIA process as has been already demonstrated with the reduction in the scale of the wind farm from that originally scoped in July 2012.

Infinis welcomes comments from the local community and other stakeholders on the project and on the ways that they would prefer to be consulted. Comments are specifically invited on:

- The proposed content of the ES;
- Assessment methods;
- Additional data sources; and
- Additional consultees.

13.1 Scoping Consultation

Infinis is fully committed to a thorough engagement process aiming to ensure that stakeholders are consulted and informed of developments during, and beyond, the EIA process on all their projects. Consultation will be incorporated into the iterative design process and recorded in appropriate sections of the ES.

The scoping process will be coordinated by SHDC, however a suggested list of consultees to be contacted at the scoping stage is provided below:

- Boston Borough Council
- British Horse Society
- English Heritage
- Environment Agency
- Garden History Society
- Health and Safety Executive
- Highways Agency
- Lincolnshire Badger Group
- Lincolnshire Bat Group
- Lincolnshire County Council
- Lincolnshire Wildlife Trust
- National Trust
- Natural England
- Ramblers Association
- Royal Society for the Protection of Birds (RSPB)
- South Holland District Council
- South Holland Internal Drainage Board
- Sustrans
- The Lincolnshire Bird Club
- The Wash Estuary Strategy Group
- Parish Councils:
    - Fleet
    - Fosdyke
    - Gedney
    - Holbeach
    - Kirton
    - Moulton
    - Whaplode

The following organisations will also be consulted under their own arrangements:

- Anglian Water
- Arqiva
- Atkins Limited
- ITC Office of Communications (OFCOM) – Now managed by Spectrum Licensing
- Joint Radio Company (JRC)
- Ministry of Defence (Defence Estates)
- NATS

It is not proposed that the Civil Aviation Authority (CAA) be consulted on the scoping report because since December 2010 they have not been responding to pre-application consultation requests. The CAA does have standard pre-planning advice[55], available online, which Arcus and the Developer is aware of.

This consultee list is not definitive. Should feedback be received on other organisations that should be included, and the project team is advised (see Section 16.3 for contact details), then further consultation will be conducted.

13.2 Public Consultation

13.2.1 Public Exhibitions

Whilst specific dates for public exhibitions have not yet been scheduled, the Developer proposes that prior to the layout being fixed public exhibitions will be held where information about the proposals will be on display and members of the project team will be available to discuss any element of the scheme with residents and stakeholders. Political and community stakeholders will be invited to attend, and local residents invited through leaflets distributed locally. Comments forms will also be available for attendees to submit their views on the scheme.

13.2.2 Project Website

A project specific website has been established and will be kept up to date with information about the proposals and an online mechanism for consultees to submit their views.

13.2.3 Advertisements

The Public Exhibitions will be advertised in the local media, to encourage awareness of the scheme and attendance at the exhibition.

13.2.4 Accessibility

Exhibitions and any other relevant public meetings will be arranged for times and locations that are most convenient for local people to attend – typically involving exhibitions on a weekday afternoon and evening in a venue that is fully accessible to people with limited mobility.

13.3 Statement of Community Involvement (SCI)

All comments and feedback received during the pre-application consultation will be carefully recorded and a *Statement of Community Involvement Report* will be submitted to SHDC to accompany the planning application, reporting the engagement activities undertaken, summarising the comments received and explaining the Developer's response to key issues.

[55] CAA Pre Planning Advice – Available online: http://www.caa.co.uk/docs/1959/20101217CAAAdvicePrePlanning.pdf Accessed 25/3/2014.

13.4 Further Information

If you would like to discuss any issues raised within this report in more detail, or require any further information prior to responding to this Scoping Report, please contact Andrew Mott (EIA Project Manager) at the below address.

Arcus Consultancy Services Ltd
Suite 1C
Swinegate Court East
3 Swinegate
York
YO1 8AJ

andrewm@arcusconsulting.co.uk

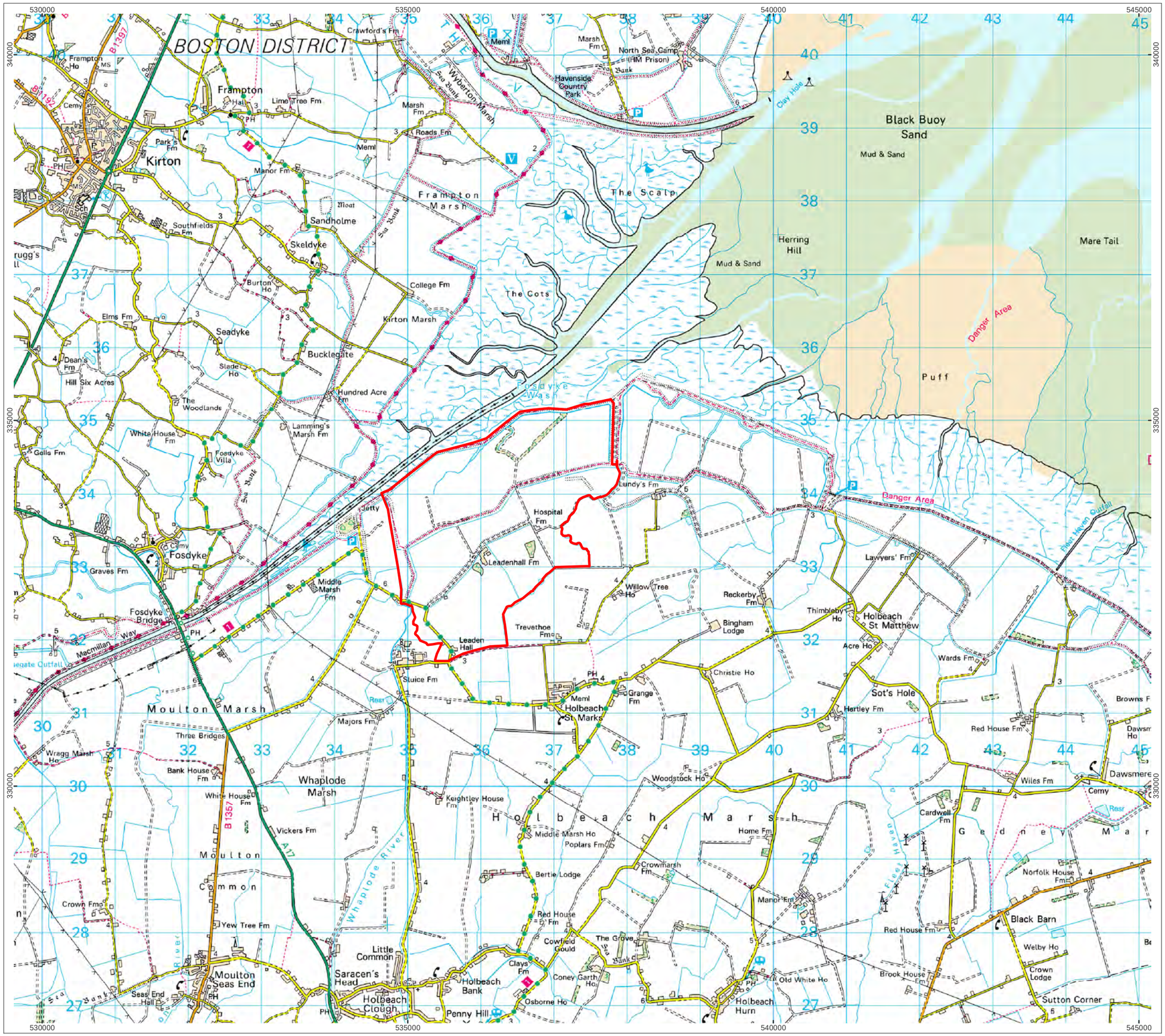
APPENDIX 1- FIGURES

Figure 1 – Site Location

Figure 2 – Provisional Site Layout

Figure 3 – Ecological and Landscape Designations

Figure 4 – Cultural Heritage Designations



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ARCUS

Site Boundary

1:50,000 Scale @ A3

0 1 2 km

N

Produced: RMc Reviewed: SC Approved: JT	Ref: 1629/REP/002 Date: 14/07/2014

Site Location
Figure 1

Holbeach St Marks Wind Farm
Scoping Report

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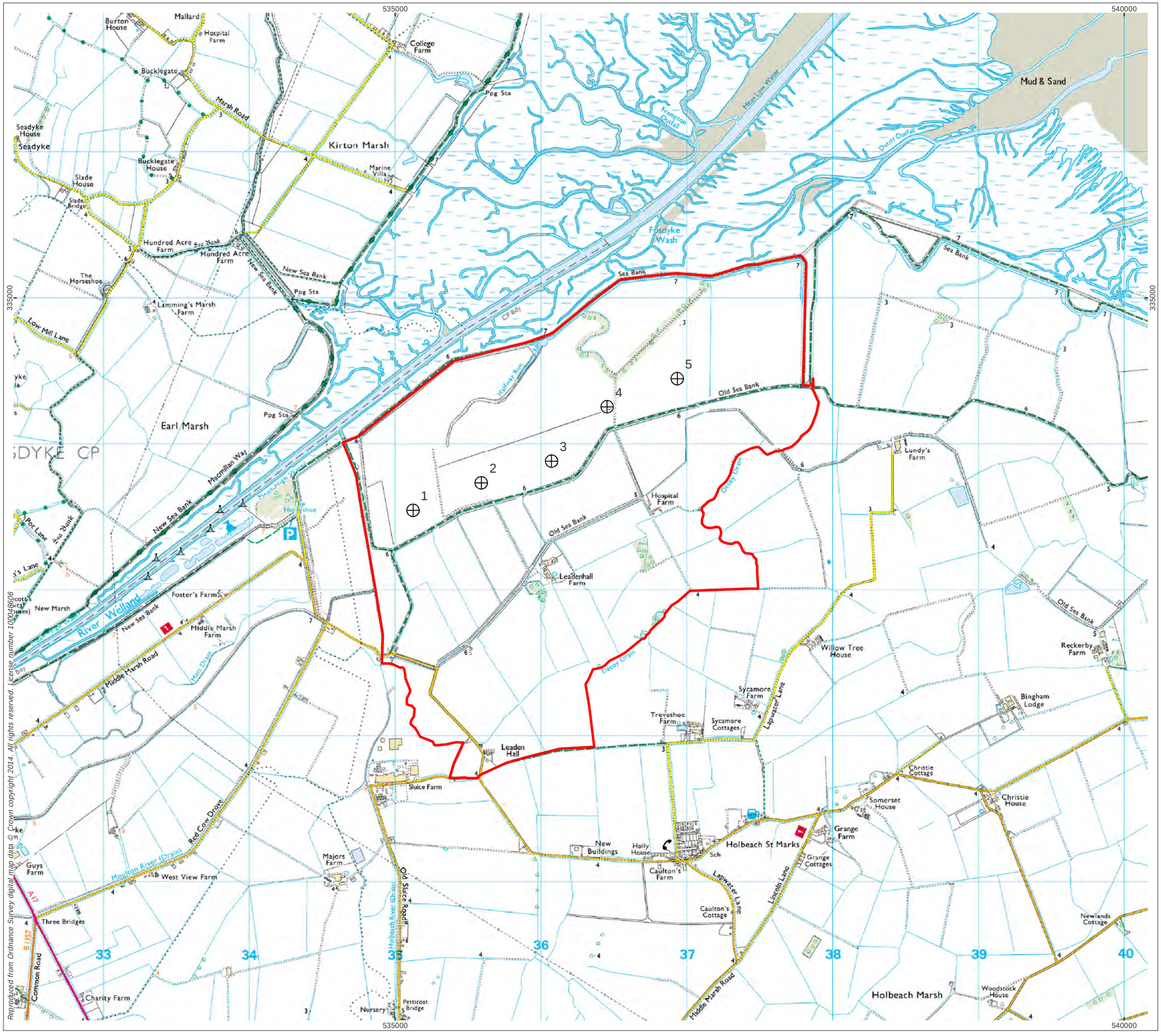

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ARCUS

⊕ Proposed Turbine Location

Site Boundary

Turbine Coordinates	Easting	Northing
1	535121	333545
2	535591	333734
3	536074	333882
4	536455	334254
5	536935	334448

1:25,000 Scale @ A3

N

0 0.5 1 km

Produced: RMc Reviewed: SC Approved: JT	Ref: 1629/REP/003 Date: 14/07/2014

Provisional Site Layout
Figure 2

Holbeach St Marks Wind Farm
Scoping Report

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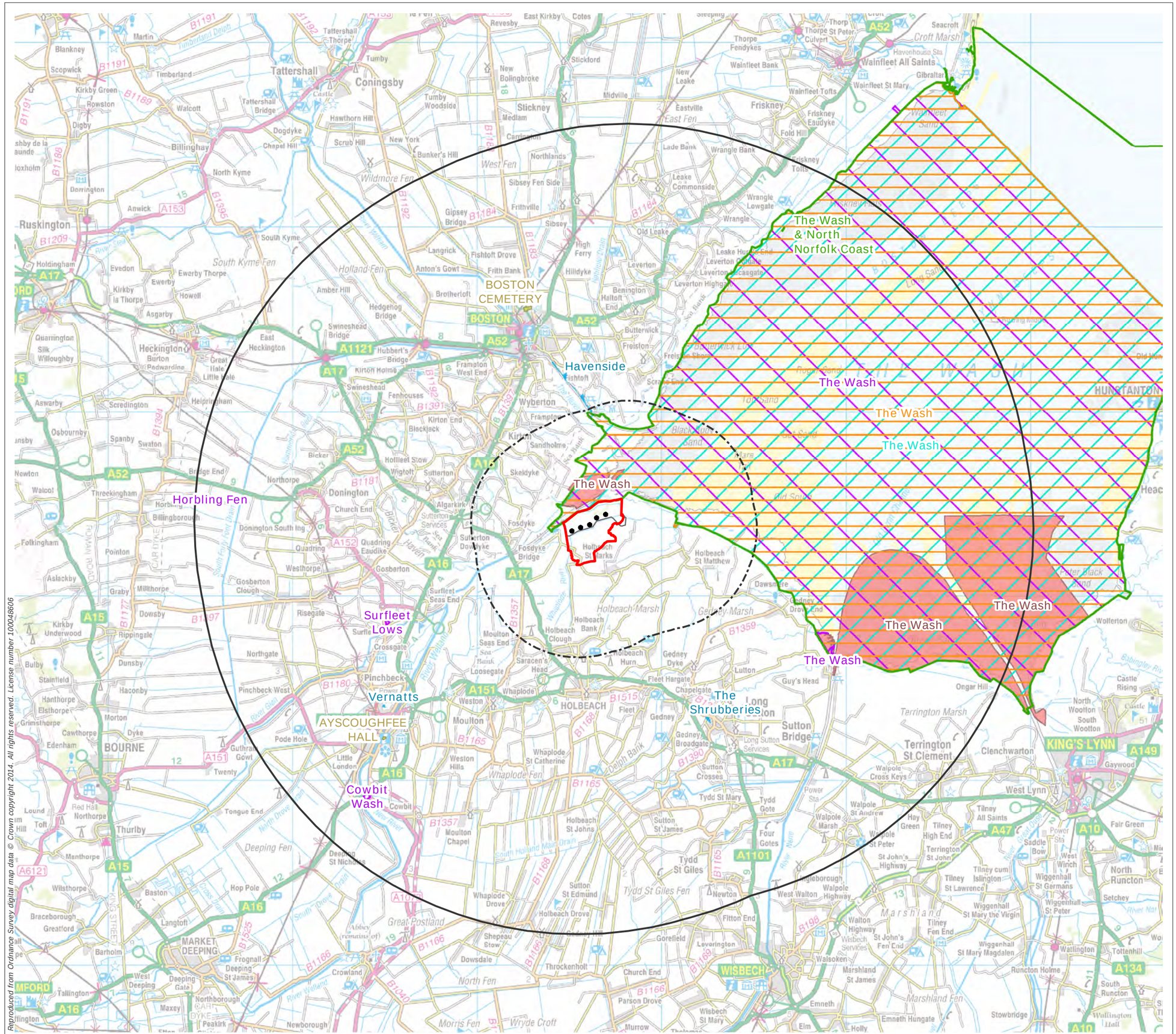

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ARCUS

- Proposed Turbine Location
- 5 km Study Area
- 20 km Study Area
- Area of Interest
- Special Protection Area
- Site of Special Scientific Interest
- Ramsar
- National Nature Reserve
- Local Nature Reserve
- Special Area of Conservation
- Registered Parks and Gardens

1:200,000 Scale @ A3

N

0 5 10 km

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Ecological and Landscape Designations
Figure 3

Holbeach St Marks Wind Farm
Scoping Report

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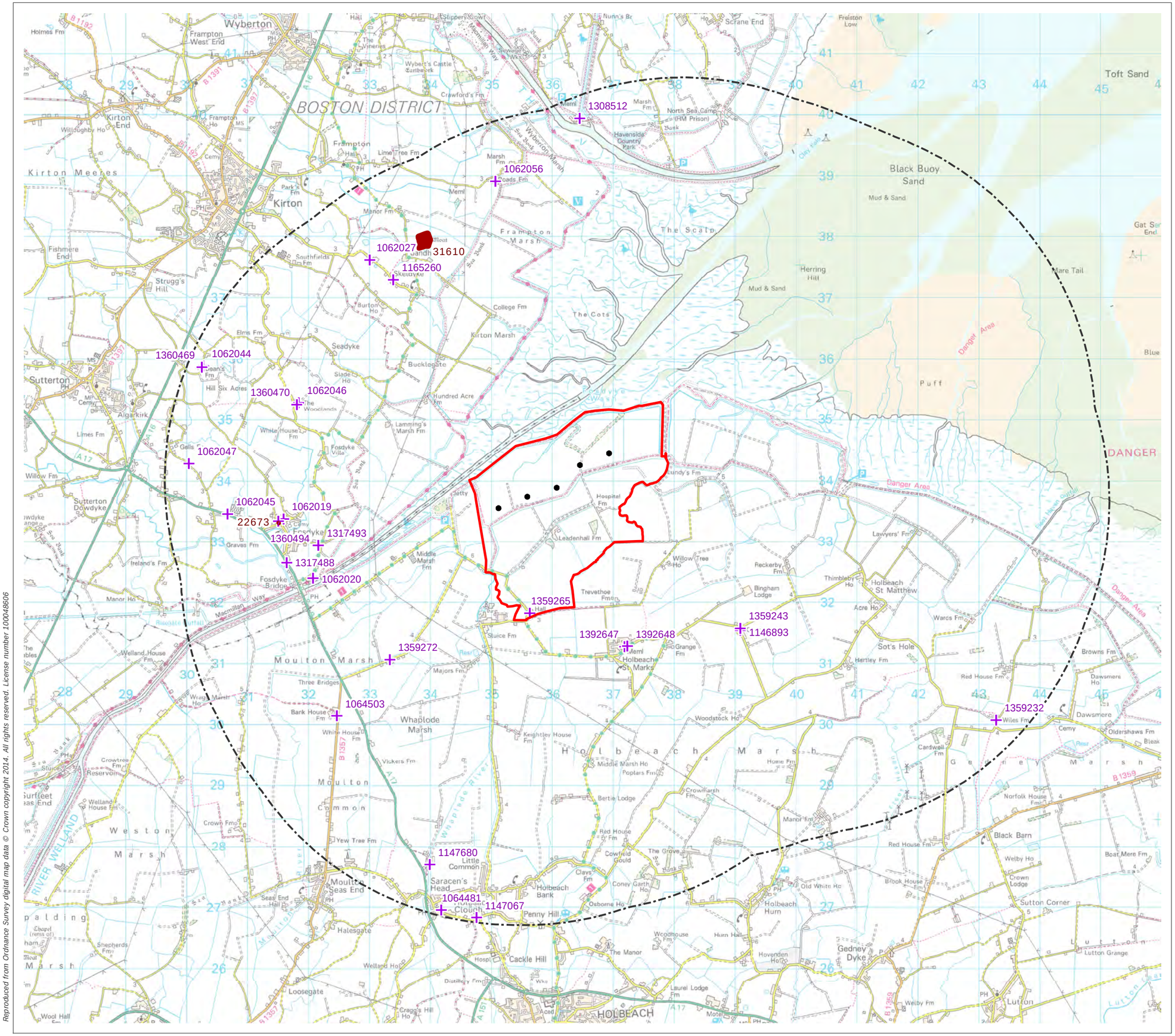

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ARCUS

- Proposed Turbine Location
- Site Boundary
- 5 km Study Area
- Grade II Listed Building
- Scheduled Monument

1:60,000 Scale @ A3

0 1 2 km

N

Produced: RMc Reviewed:SC Approved: JT	Ref: 1629/REP/004 Date: 14/07/2014

Cultural Heritage Designations Figure 4

Holbeach St Marks Wind Farm Scoping Report

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