

Welsh Government

M4 Corridor around Newport

August 2017 Environmental
Statement Supplement
Appendix ESS5 2.2

Ecology Desk Study

M4CaN-DJV-EBD-ZG_GEN-AX-EN-0057

At Issue | August 2017

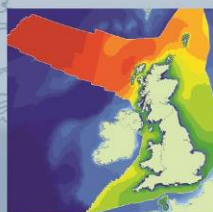
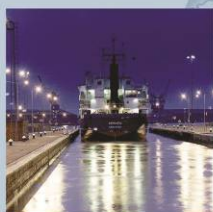
ABP Newport

ABP Newport Second Wind Turbine: Environmental Report

Report R.2468

July 2015

Creating sustainable solutions for the marine environment



Page intentionally left blank

ABP Newport

ABP Newport Second Wind Turbine: Environmental Report

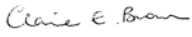
Date: July 2015

Project Ref: R/4302/01

Report No: R.2468

© ABP Marine Environmental Research Ltd

Version	Details of Change	Date
1	Final	09.07.2015

Document Authorisation		Signature	Date
Project Manager:	H M Jackson		09.07.2015
Quality Manager:	S C Hull		09.07.2015
Project Director:	C E Brown		09.07.2015

ABP Marine Environmental Research Ltd
Quayside Suite, Medina Chambers, Town Quay, Southampton, Hampshire SO14 2AQ

Tel: +44 (0) 23 8071 1840
Web: www.abpmer.co.uk

Fax: +44 (0) 23 8071 1841
Email: enquiries@abpmer.co.uk

ABPmer is certified by:



Disclaimer:

- Any 'Draft' issue of this report, and any information contained therein, may be subject to updates and clarifications on the basis of any review comments before 'Final' issue. All content should therefore be considered provisional, and should not be disclosed to third parties without seeking prior clarification from ABP Marine Environmental Research Ltd ("ABPmer") of the suitability of the information for the intended disclosure and should not be relied upon by the addressee or any other person.
- Unless previously agreed between the addressee and ABPmer, in writing, the 'Final' issue of this report can be relied on by the addressee only. ABPmer accepts no liability for the use by or reliance on this report or any of the results or methods presented in this report by any party that is not the addressee of the report. In the event the addressee discloses the report to any third party, the addressee shall make such third party aware that ABPmer shall not be liable to such third party in relation to the contents of the report and shall indemnify ABPmer in the event that ABPmer suffers any loss or damage as a result of the addressee failing to make such third party so aware.
- Sections of this report rely on data supplied by or drawn from third party sources. Unless previously agreed between the addressee and ABPmer, in writing, ABPmer accepts no liability for loss or damage suffered by the addressee or any third party as a result of any reliance on third party data contained in the report or on any conclusions drawn by ABPmer which are based on such third party data.

Summary

This Environmental Report has been prepared on behalf of Associated British Ports (ABP) in support of a planning application for the development of a second wind turbine on land off East Way Road at Newport Docks. The turbine will be up to 2.3MW and will be connected to the port electrical network via an existing substation. The proposed development site is located on a predominantly pre-developed or brownfield area within a highly industrialised location.

This Environmental Report aims to provide evidence which will inform Newport City Council's (NCC) decision on the planning application submission. This report builds on the information presented in ABPmer's Screening Request Letter (Appendix A) as submitted to NCC on 19 May 2015 and the subsequent screening response received from NCC (Appendix B).

NCC's screening response, dated 9 June 2015, stated that an Environmental Statement (ES) was not required on the basis that any outstanding issues could be adequately dealt with throughout the planning application process. Alongside these discussions, ABP also consulted with Natural Resources Wales (NRW) about the potential ecological effects of the proposal. In particular, because the turbine is to be positioned approximately 150 m from the Usk River Special Areas of Conservation (SAC) (see Figure 2) and 800 m from the Severn Estuary Special Protection Area (SPA) and Ramsar area, there was a need to consider whether this project required an Appropriate Assessment (AA) under the Habitats Regulations. An AA is needed where a plan or project is not directly connected with or necessary for the management of designated European sites or offshore European sites, including SACs and SPAs, and where the possibility of a likely significant effect (LSE) on these sites cannot be excluded, either alone or in combination with other plans or projects. Advice from NCC and NRW determined that an AA would need to be undertaken and thus this Environmental Report provides the ecological information required to inform an AA to be carried out by NCC.

In response to the advance discussions that have been had with NCC and NRW this report presents further information on the following key issues in support of the planning application:

- Nature conservation and biodiversity, including:
 - Designated Sites;
 - Ecological Appraisal;
 - Overwintering Birds;
 - Breeding Birds; and
 - Migratory Fish;
- Effects of noise (airborne);
- Effects on the landscape and visual environment (including shadow flicker).
- Flood risk; and
- Effects on the historic environment.

Acknowledgements

We would like to thank all those that have contributed to the production of the study including Associated British Ports, Project Management Support Services, Thomson Ecology, Xodus, Angela Hunt and Richard Facey from Natural Resources Wales, as well as all those involved at Newport City Council.

Abbreviations

AA	Appropriate Assessment
ABP	Associated British Ports
ABPmer	ABP Marine Environmental Research Ltd
ASA	Archaeologically Sensitive Area
BS	British Standard(s)
CIEEM	Chartered Institute of Ecology and Environmental Management
DAFOR	Dominant, Abundant, Frequent, Occasional, Rare
DECC	Department of Energy and Climate Change
DTI	Department of Trade and Industry
ES	Environmental Statement
JNCC	Joint Nature Conservation Committee
LA90	level exceeded for the 90% of the time under consideration
L _{Aeq}	Equivalent continuous A-weighted sound pressure level
LSE	Likely Significant Effect
LWS	Local Wildlife Site
NERC	Natural Environment and Rural Communities
NCC	Newport City Council
NNR	National Nature Reserve
NRW	Natural Resources Wales
OSGB	Ordnance Survey Great Britain
PPW	Planning Policy Wales
PMSS	Project Management Support Services
Ramsar	Wetland sites of international importance designated under the Ramsar Convention
SAC	Special Area of Conservation
SEWBRcC	South East Wales Biodiversity Records Centre
SINC	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TAN	Technical Advice Note
TIN	Technical Information Note
TNEI	TNEI Services Ltd
UK	United Kingdom
WindPRO	Wind energy software used to model wind farms (EMD International A/S)

Cardinal points/directions are used unless otherwise stated.

SI units are used unless otherwise stated.

ABP Newport Second Wind Turbine: Environmental Report

Contents

	Page
Summary	5
Acknowledgements.....	6
Abbreviations	7
1. Introduction	11
1.1 Project Background	11
1.2 Report Background.....	12
1.3 Project Description	13
2. Planning Policy Context.....	14
2.1 National Policy Advice	14
2.1.1 Planning Policy Wales (Welsh Government, 2014).....	14
2.1.2 Technical Advice Note (TAN) 8: Planning for Renewable Energy (Welsh Government, 2005)	16
2.1.3 Energy Policy Statement (Welsh Government, 2010a).....	16
2.1.4 Welsh Government's Energy Policy Statement Energy Wales: A Low Carbon Transition (Welsh Government, 2012)	16
2.1.5 Generating Your Own Energy: A Planning Guide for Householders, Communities and Businesses (Welsh Government, 2010b).....	16
2.2 Local Policy Advice.....	17
2.2.1 Newport Local Development Plan	17
2.2.2 Newport's Community Strategy	17
2.3 Other Considerations.....	18
2.4 Policy Conclusions	18
3. Nature Conservation and Biodiversity.....	19
3.1 Introduction.....	19
3.2 Designated Sites	19
3.3 Ecological Appraisal of the Site	19
3.3.1 Baseline	19
3.3.2 Methodology.....	19
3.3.3 Potential Effects of the ABP Newport Turbine.....	20
3.4 Overwintering Birds	22
3.4.1 Baseline	22
3.4.2 Methodology.....	23
3.4.3 Potential Effects of the ABP Newport Turbine.....	24
3.5 Breeding Birds	26
3.5.1 Baseline	26
3.5.2 Methodology.....	26
3.5.3 Potential Effects of the ABP Newport Turbine.....	26
3.6 Migratory Fish.....	27
3.6.1 Baseline	27
3.6.2 Potential Effects of the ABP Newport Turbine.....	27

3.7	Mitigation	28
3.7.1	Invasive Plant Species	28
3.7.2	Protected and Priority Species	28
3.7.3	Ecological Enhancements	28
3.7.4	Migratory Fish	29
3.8	Conclusions	29
4.	Noise	30
4.1	Construction	30
4.1.1	Relevant Legislation and Guidance Relating to Construction Noise	30
4.1.2	Methodology	31
4.1.3	Potential Effects of the ABP Newport Turbine	32
4.1.4	Mitigation	32
4.2	Operation	32
4.2.1	Methodology	33
4.2.2	Potential Effects of the ABP Newport Turbine	33
5.	Landscape and Visual Impact	34
5.1	Baseline	34
5.1.1	Methodology	35
5.2	Potential Effects of the ABP Newport Turbine	37
6.	Flood Risk	39
6.1	Baseline	39
7.	Historic Environment	40
7.1	Baseline	40
7.2	Potential Effects of the ABP Newport Turbine	40
8.	Cumulative	41
9.	References	42

Appendices (See Separate Document)

- A. Screening Request
- B. Screening Response
- C. Designated Sites
- D. Preliminary Ecological Appraisal
- E. Environmental Effects Review
- F. NRW Consultation
- G. NRW Response
- H. Overwintering Birds
- I. Breeding Birds
- J. Noise Assessment
- K. NCC Consultation

Tables

1.	Sound pressure levels for potential turbine construction activities.....	30
2.	Predicted sound levels for piling at different distances	31
3.	Guidance provided by international parties on the effects of shadow flicker.....	37
4.	Shadow flicker assessment receptors locations	38

Images

1.	Area of the Port Estate where the turbine is to be installed	11
2.	Existing wind turbine at Port of Newport.....	11
3.	Existing wind turbines (single ABP turbine, including substation, and two Solutia wind turbines).....	18
4.	Existing wind turbines (single ABP turbine and two Solutia wind turbines).....	34
5.	View from proposed development site looking north-east towards the existing ABP Wind Turbine	35
6.	Visual representation of the proposed turbine in Newport	36
7.	Visual representation of the proposed turbine (foreground) in relation to the three existing turbines in Newport.....	36

Figures

1.	Proposed Turbine Location and Existing Wind Turbine at the Port of Newport
2.	Designated Sites
3.	Ecological Survey Area
4.	Visualisation of Proposed Wind Turbine
5.	Photographer Position in Relation to the Proposed and Existing Wind Turbines
6.	Results of Shadow Flicker Assessment
7.	Results of Shadow Flicker Assessment set against International Guidelines

1. Introduction

This Environmental Report has been prepared on behalf of Associated British Ports (ABP) in support of a planning application for the development of a second wind turbine on land off East Way Road at Newport Docks.

1.1 Project Background

ABP Newport has identified an opportunity to install a second wind turbine in the Port of Newport. The location of this turbine is shown in Figure 1, while Image 1 shows an area of the dock estate in which the turbine is to be installed. The turbine will be up to 2.3MW and will be connected to the port electrical network via an existing substation. The proposed development site is located on a predominantly pre-developed or brownfield area within a highly industrialised location.



Image 1. Area of the Port Estate where the turbine is to be installed



Image 2. Existing wind turbine at Port of Newport

ABP received planning permission for a single wind turbine at the Port of Newport in October 2012 and this original turbine has been fully operational since March 2014. The existing wind turbine lies to the north of the proposed location of the second wind turbine development. The existing turbine in relation to the development site for the current proposal is shown in Figure 1, while Image 2 shows the existing wind turbine within the port estate.

Information to support an Appropriate Assessment was submitted with the planning application for the original wind turbine in 2012. The information provided within that assessment and the evidence gathered from the construction of the existing turbine have been reviewed alongside additional data collected in 2015 (as described below) to inform the characteristics of the potential impacts of the second proposed wind turbine, as detailed below.

1.2 Report Background

The purpose of this Environmental Report is to provide a detailed understanding of the proposed development. It also provides an evaluation of the proposed development against national and local planning policies and considers the implications of the proposal on the surrounding area. This report is not a stand-alone document and should be read in conjunction with all other elements of the submission including the application forms, Construction Report and associated plans and drawings (TÜV SÜD PMSS, 2015a), Aviation Report (TÜV SÜD PMSS, 2015b), Telecommunications Report (TÜV SÜD PMSS, 2015c), Preliminary Ecological Appraisal (Appendix D), Overwintering Bird Survey (Appendix H), Breeding Bird Survey (Appendix I) and Noise Assessment (Appendix J).

This Environmental Report aims to provide evidence which will inform Newport City Council's (NCC) decision on the planning application submission. This report builds on the Screening Request Letter (Appendix A) as submitted to NCC on 19 May 2015 and the subsequent screening response received from NCC (Appendix B).

NCC's screening response, dated 9 June 2015, stated that an Environmental Statement (ES) was not required on the basis that any outstanding issues could be adequately dealt with throughout the planning application process. Alongside these discussions, ABP also consulted with Natural Resources Wales (NRW) about the potential ecological effects of the proposal. In particular, because the turbine is to be positioned approximately 150 m from the Usk River Special Areas of Conservation (SAC) (see Figure 2) and 800 m from the Severn Estuary Special Protection Area (SPA) and Ramsar area, there was a need to consider whether this project required an Appropriate Assessment (AA) under the Habitats Regulations. An AA is needed where a plan or project is not directly connected with or necessary for the management of designated European sites or offshore European sites, including SACs and SPAs, and where the possibility of a likely significant effect (LSE) on these sites cannot be excluded, either alone or in combination with other plans or projects. Advice from NCC and NRW determined that an AA would need to be undertaken and thus this Environmental Report provides the ecological information required to inform an AA to be carried out by NCC.

In response to the advance discussions that have been had with NCC and NRW this report presents further information on the following key issues in support of the planning application:

- Nature conservation and biodiversity, including:
 - Designated Sites;
 - Ecological Appraisal;
 - Overwintering Birds;
 - Breeding Birds; and
 - Migratory Fish;
- Effects of noise (airborne);
- Effects on the landscape and visual environment (including shadow flicker).
- Flood risk; and
- Effects on the historic environment.

1.3 Project Description

The proposed wind turbine development will include the installation of the wind turbine as well as preparation of the necessary access routes within the Port facility, creation of a crane hardstanding and cable routing to an existing substation to enable electrical connection to the onsite grid network.

Figure 1 shows the proposed turbine location. The development will be sited within a brownfield area located on East Way Road at Newport Docks (Grid Reference ST326846). The application site lies within the southern section of the Newport Dock estate which is operated by ABP. Newport Docks are located directly to the south of Newport at the mouth of the River Usk. Occupying a prime location the Docks serve the UK's main industrial and commercial regions and have strategic road links to the M4 and Newport's Southern Distributor Road in addition to active rail links to the wider network within Wales. The site is bordered by the River Usk and East Way Road. The application site covers an area of approximately 3.72 ha; including approximate turbine foundation 0.02 ha (upper end of likely foundation size), crane hardstanding 0.28 ha (including lay down areas), temporary construction compound 0.04 ha, cable route 0.03 ha (conservative estimate) and delivery route 0.07 ha (conservative estimate). Following consultation with NRW, ABP has ensured that the turbine will be located at least 50 m from the boundary with the River Usk to limit any potential effects on designated features. In fact the turbine is to be located over 150 m from the River Usk. The area included in the latest ecological surveys is also shown in Figure 3. This survey area covers significant area around the proposed turbine location to assess any potential indirect effects on features along the port/river boundary. Further detail on these surveys is provided below.

At present the specific model of wind turbine has yet to be selected, being subject to a competitive tender. However, it is considered likely that the turbine will be identical to the one already present on site, with a rotor consisting of three blades. The original turbine is an E82 with the following dimensions; maximum tip height: 126 m, rotor diameter: 82 m (radius: 41 m), hub height: 85 m, as shown in Figure 3 of the Construction Report (TÜV SÜD PMSS, 2015a). The turbine tower will typically consist of three tower sections, the lower of which will be mounted to the wind turbine foundation.

The Construction Report (TÜV SÜD PMSS, 2015a) describes in more detail the various aspects of the dimensions and construction of the proposed development, and embedded mitigation within the scheme to avoid any impacts to the scheme as a result of flooding.

2. Planning Policy Context

Consideration has been given to both national planning policy and local development planning policies in assessing the acceptability of the proposals in planning and environmental terms.

2.1 National Policy Advice

National planning policy in Wales consists of Planning Policy Wales (Edition 7, July 2014), which is supplemented by a series of 21 topic based Technical Advice Notes (TANs) (Planning Portal website). Further details of planning guidance are detailed below.

2.1.1 Planning Policy Wales (Welsh Government, 2014)

PPW4 (Planning for Sustainability) notes that the planning system will play an important role in reducing greenhouse gas emissions and dealing with the consequences of climate change. The Assembly Government has a duty under Section 79 of the Government of Wales Act 2006 to commit to the principles of sustainability and sustainable development.

PPW4 confirms that the planning system has a fundamental role in delivering sustainable development in Wales. In particular the planning system, through both development plans and the development control process, must provide for homes, infrastructure, investment and jobs in a way which is consistent with sustainability principles and the urgent need to tackle climate change.

Sections 4.3 and 4.4 of PPW4 set out the principles and objectives which underpin the Welsh Government's approach to planning policy for sustainable development. The most relevant to the proposed development being:

Principles:

- Respect for environmental limits, so that resources are not irrecoverably depleted or the environment irreversibly damaged. This means, for example, mitigating climate change, protecting and enhancing biodiversity, minimising harmful emissions, and promoting sustainable use of natural resources; and
- Tackling climate change by reducing the greenhouse gas emissions that cause climate change and ensuring that places are resilient to the consequences of climate change.

Objectives:

- Promote resource-efficient and climate change resilient settlement patterns that minimise land-take (and especially extensions to the area of impermeable surfaces) and urban sprawl, especially through preference for the re-use of suitable previously developed land and buildings, wherever possible avoiding development on greenfield sites;

- Support the need to tackle the causes of climate change by moving towards a low carbon economy. This includes facilitating development that reduces emissions of greenhouse gases in a sustainable manner, provides for renewable and low carbon energy sources at all scales and facilitates low and zero carbon developments;
- Contribute to the protection and improvement of the environment, so as to improve the quality of life, and protect local and global ecosystems. In particular, planning should seek to ensure that development does not produce irreversible harmful effects on the natural environment and support measures that allow the natural heritage to adapt to the effects of climate change. The conservation and enhancement of statutorily designated areas and of the countryside and undeveloped coast; the conservation of biodiversity, habitats, and landscapes; the conservation of the best and most versatile agricultural land; and enhancement of the urban environment all need to be promoted; and
- Promote a low carbon economy and social enterprises.

PPW 12 (Infrastructure and Services) outlines the Welsh Government's commitment and aspirations for low carbon energy generation as part of tackling climate change. Specific objectives relevant to this project within PPW 12 include:

- To promote the generation and use of energy from renewable and low carbon energy sources at all scales and promote energy efficiency, especially as a means to secure zero or low carbon developments and to tackle the causes of climate change.

PPW12 recognises that in the short to medium term, wind energy continues to offer the greatest potential (for activities within the control of the planning system in Wales) for delivering renewable energy. Wales has an abundant wind resource and power generation using this resource remains the most commercially viable form of renewable energy. The Welsh Government accepts that the introduction of new, often very large structures for onshore wind needs careful consideration to avoid and where possible minimise their impact. However, the need for wind energy is a key part of meeting the Welsh Government's vision for future renewable electricity production as set out in the Energy Policy Statement (Welsh Government, 2012) (see Section 2.1.4) and should be taken into account by decisions makers when determining such applications. PPW12 sets out that local planning authorities should facilitate the development of all forms of renewable and low carbon energy to move towards a low carbon economy to help to tackle the causes of climate change. Specifically, they should make positive provision by:

- Considering the contribution that their area can make towards developing and facilitating renewable and low carbon energy, and ensuring that development plan policies enable this contribution to be delivered;
- Ensuring that development management decisions are consistent with national and international climate change obligations, including contributions to renewable energy targets and aspirations;
- Recognising the environmental, economic and social opportunities that the use of renewable energy resources can make to planning for sustainability; and
- Ensuring that all new publicly financed or supported buildings set exemplary standards for energy conservation and renewable energy production.

Specifically, both PPW4 and PPW12 encourage a strong preference for the re-use of land, specifically urban/industrial brownfield sites, confirming that previously developed land should, wherever possible, be used in preference to greenfield sites.

2.1.2 Technical Advice Note (TAN) 8: Planning for Renewable Energy (Welsh Government, 2005)

The provision of electricity from renewable sources is an important component of the UK energy policy. The UK has an established target of producing 10% of electricity production from renewable energy sources by 2010. The Welsh Assembly Government has a target of 4TWh of electricity per annum to be produced by renewable energy by 2010 and 7TWh by 2020. TAN8 states that in order to meet these targets the Welsh Government has concluded that 800MW of additional installed (nameplate) capacity is required from onshore wind sources.

TAN8 recognises that there is the potential for the development of wind power within urban/industrial brownfield sites, but that so far this energy source is largely untapped. The Welsh Assembly Government expects local planning authorities to encourage, via their development plan policies and when considering individual planning applications, smaller community based wind farm schemes (generally less than 5 MW).

2.1.3 Energy Policy Statement (Welsh Government, 2010a)

The Energy Policy Statement states that the aim of the Welsh Government is to have 4.5 kWh/d/p of installed onshore wind generation capacity by 2015/2017. In particular the Energy Policy Statement promotes 'further use of brownfield or local sites for smaller-scale projects appropriate to their locations'.

2.1.4 Welsh Government's Energy Policy Statement Energy Wales: A Low Carbon Transition (Welsh Government, 2012)

Furthermore, the energy policy, Energy Wales: A Low Carbon Transition, sets out how Wales will move from fossil fuel based energy generation to utilise a wider mix of energy sources, which are mainly renewable or low in carbon.

The Welsh Government commit to making the best use of commercially proven renewable energy sources, such as onshore wind, and to facilitate appropriate deployment to deliver against their low carbon objectives, contribute to wider UK and EU aims and realise the significant wealth-generating opportunities Wales has.

2.1.5 Generating Your Own Energy: A Planning Guide for Householders, Communities and Businesses (Welsh Government, 2010b)

Recommendations for onshore wind are also set out in 'Generating Your Own Energy: A Planning guide for Householders, communities and businesses'. Under this same series of policy guidance leaflets, further information is presented about the considerations that need to be given to the Current Planning Regulations (Welsh Government, 2010c) along with specific

guidance on wind energy generation (Welsh Government, 2010d). These documents indicate that developments, like the one proposed, which are less than 5MW are considered to be 'small/community' scale, they also set out the planning issues that need to be considered.

2.2 Local Policy Advice

2.2.1 Newport Local Development Plan

Guidance is also available within the Newport Local Development Plan 2011-2026 (NCC, 2012), in which Policy CE14 relates to renewable energy and is therefore the most relevant local planning policy. This Policy states that development sites for power generation from renewable resources will be considered favourably where there will be:

- No significant adverse effect on the environment and the amenities of local residents by the scale and appearance of the development and by resultant visual, noise or ecology impacts;
- No unacceptable impact in sensitive, designated areas, such as areas of high landscape quality, and areas of nature conservation, or archaeological or historical importance; or
- No significant adverse effect on the special qualities of the Gwent Levels. The Gwent Levels are recognised as an internationally important resource in terms of landscape and heritage and nationally important for ecology. Proposals which affect the special qualities of the Gwent Levels will be resisted.

Furthermore, CE14 states that brownfield sites within the urban boundary will be favourably considered, in particular those located close to grid connections. Brownfield options are considered to be a more sustainable option than greenfield in terms of land take up and benefitting from being surrounded by potential energy users.

More generally, policy SP1 of the Local Development Plan on Sustainability states that proposals will be required to: 'make a positive contribution to sustainable development and will be assessed as to their potential contribution to (amongst other things):

- Reducing energy consumption, increasing energy efficiency and encouraging the use of low and zero carbon energy sources'.

2.2.2 Newport's Community Strategy

Newport's Community Strategy 2010-2020 (NCC, 2010) contains the Local Service Board's vision for improving Newport over the next ten years. In particular the strategy notes that, compared to other local authorities in Wales, Newport has one of the highest per capita emissions due to a high volume of industrial and commercial emissions of CO₂. Resources and actions will be targeted at local businesses, communities and the environment to reduce the carbon footprint of Newport and build a sustainable economy.

2.3 Other Considerations

In addition to these policy context and guidelines, it is also relevant to consider other wind energy generation projects that have been undertaken or are proposed at this time. Three wind turbines have already been constructed in the area, one by ABP within the Port of Newport and two by Solutia on land to the east of the River Usk (see Image 3 and Figure 4). These built installations provide further information about the environmental and planning context against which judgements about the effects of the proposed ABP turbine can be made.



(View towards east)

Image 3. Existing wind turbines (single ABP turbine, including substation, and two Solutia wind turbines)

2.4 Policy Conclusions

This project is considered to be fully in keeping with the objectives for renewable energy projects that are set out in the above planning policy section. In particular, it would appear to be well aligned to one of the stated aims for onshore wind energy generation which is to promote 'further use of brownfield or local sites for smaller-scale projects appropriate to their locations'.

Even though the development of a wind turbine in this location is supported in principle by planning policy at all levels, there is still a requirement to ensure that the proposed development would not have unacceptable adverse impacts that outweigh the environmental, social and economic benefits. Therefore the following chapters review the potential effects of the proposed wind turbine and associated mitigation where necessary.

3. Nature Conservation and Biodiversity

3.1 Introduction

This report presents the findings from a series of investigations that have been undertaken to determine the potential environmental effects of this turbine. These studies have been carried out in order to technically underpin the planning application submitted by ABP. This work has been completed in response to formal advice received from NCC and NRW. The following sections review the effects on designated sites and the features for which they are protected (including habitats, invertebrates, amphibians, reptiles, bats, other protected mammals, overwintering birds and breeding birds). A map of the internationally designated sites is included in Figure 2.

3.2 Designated Sites

The Severn Estuary is subject to numerous designations due to its importance as a wildlife resource. The proposed development site does not directly overlap with any environmental designations, however, it is located within 5 km of a number of designated sites of conservation interest; namely:

- River Usk Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI);
- Severn Estuary SAC, Special Protection Area (SPA), Ramsar Site and SSSI;
- Gwent Levels – St Brides Bay SSSI;
- Gwent Levels – Nash and Goldcliff SSSI; and
- Newport Wetlands SSSI.

Further information on these sites is provided in Appendix C. There is an additional National Nature Reserve (NNR), six locally important wildlife sites designated as Sites of Importance for Nature Conservation (SINC) and one Local Wildlife Site (LWS) within 2 km of the site.

The potential impacts on the individual features of these designated sites are discussed in more detail in the following sections.

3.3 Ecological Appraisal of the Site

3.3.1 Baseline

ABP commissioned Thomson Ecology to undertake a Preliminary Ecological Appraisal across the proposed site to gather baseline ecological data for the site.

3.3.2 Methodology

Thomson Ecology initially undertook an ecological desk based study including purchase of third party biological records. A survey area (Figure 3) was selected based on an assessment of the

potential 'Zone of Influence' of the development, taking into account the size and type of the development and its potential impacts on features of biodiversity interest. The 'Zone of Influence' is defined as "the areas/resources that may be affected by the biophysical changes caused by activities associated with a project" (CIEEM, 2006). South East Wales Biodiversity Records Centre (SEWBReC) was contacted for the purchase of biological data. SEWBReC was asked to provide up-to-date information on sites designated for their nature conservation value, local nature reserves, records of protected species and other species of conservation concern and any other information that they considered relevant.

An extended Phase 1 habitat survey was subsequently undertaken across the survey area on 13 April 2015. Phase 1 habitat survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present. For this survey, the technique was modified (or extended) to provide more detail over a smaller area, and give further consideration to fauna.

The dominant and readily identified species of higher plant species from each habitat type within the survey area were recorded and their abundance was assessed on the DAFOR scale:

D	Dominant;
A	Abundant;
F	Frequent;
O	Occasional;
R	Rare.

These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2010).

Target notes were made for any features which were too small to map or are of particular ecological interest. Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support protected species and other species of conservation concern, including priority species. However, no specific faunal surveys were undertaken.

The survey report and methodology is provided as Appendix D.

3.3.3 Potential Effects of the ABP Newport Turbine

3.3.3.1 Plants

During the field survey, the site was found to support dense scrub, dense and scattered scrub mosaic, scattered scrub and swamp mosaic, ephemeral/short perennial and scattered scrub mosaic, ephemeral/short perennial, bare ground and buildings. No habitats of principal importance for biodiversity conservation in Wales were identified within the survey area. Measures to enhance the retained habitat on site for plants are given in Section 3.7 below.

Two small stands of Japanese knotweed (*Fallopia japonica*) were found to occur at the north-east of the site. Under the Wildlife and Countryside Act 1981, as amended, it is an offence to plant or otherwise cause this species to grow in the wild. The stands had already been treated prior to the field survey; however, treatment measures as set out in Section 3.7 below will ensure that this species is eradicated prior to development.

3.3.3.2 Birds

A Blackbird, a Crow, a species of Warbler and Lapwing were also recorded on site. The presence of overwintering birds within the site is discussed further in Section 3.4. Furthermore, the ecological appraisal identified that the dense scrub and scattered scrub may provide habitat for breeding birds and ground nesting birds including the Lapwing recorded during the field survey. Following this finding ABP commissioned further breeding bird surveys to monitor usage across the site. The presence of breeding birds within the site is discussed further below in Section 3.5.

3.3.3.3 Invertebrates

The desk study returned three invertebrates including the brown-banded carder bee listed in Section 42 of the NERC (Natural Environment and Rural Communities) Act 2006, therefore making it a priority species in Wales. This species was not identified during the field survey and favours grassland. The survey area is, therefore, considered suboptimal for this species and is unlikely to be adversely affected by the proposed development.

3.3.3.4 Amphibians

No suitable water bodies were recorded within the survey area and the terrestrial habitats were assessed as currently being of poor suitability to support great crested newt (*Triturus cristatus*) or other amphibian species. Therefore amphibians are unlikely to be affected by the proposed development.

3.3.3.5 Reptiles

In its current state, the survey area offers poor suitability for reptile species and the desk study did not return any records of reptiles within 1 km of the survey area. Therefore reptiles are unlikely to be affected by the proposed development.

3.3.3.6 Bats

The proposed development is located on the banks of the River Usk Estuary, and Natural England Technical Information Note 059 (TIN059) (Natural England, 2009), which is ratified by NRW, states that “a bat survey should normally be recommended for applications for turbines that will be located within 50 m of ... rivers”. However, TIN059 goes on to state that for locations that “have higher risk features within 50 m of the proposed turbine (for example rivers), it may also be possible to rule out the need for survey at some sites at the scoping stage if the person making the assessment has some knowledge of the habitat and/or buildings

at the proposed site and of the bat species that could reasonably be expected to be resident in the area”.

The proposed turbine development is to be located over 150 m from the River Usk. Thomson Ecology's desk study did not return any bat species within 1 km of the survey area and suitable habitat for bats was not identified during the field survey. Furthermore, the survey area was considered to have poor connectivity to surrounding areas and the buildings and trees present within the survey area were not identified as possessing potential for bats. In addition, there were a lack of linear features or suitable foraging habitat on site.

Furthermore, the bat survey undertaken over the summer of 2012 for the original wind turbine application recorded a low, or very low level of bat activity on site including only three species: common pipistrelle (*Pipistrellus pipistrellus*); soprano pipistrelle (*Pipistrellus pygmaeus*); and noctule bat (*Nyctalus noctula*). It was concluded that the proposed development would not lead to the loss of habitat of value to bats.

Although it is considered unlikely that the proposed development will have an impact on bats, following advice within Natural England's TIN059 bat surveys will be undertaken between July and September 2015 to confirm the levels of bat activity within the proposed development area.

3.3.3.7 Other protected mammals

The desk study did not return any mammals within 1 km of the site although rabbits were identified as present with suitable habitat available on site. Rabbit burrow holes were recorded at the west and east of the site with droppings recorded widely across the site. Rabbits receive some protection under the Wild Mammals (Protection) Act 1996. This makes it an offence to intentionally cause this species unnecessary suffering by certain methods including crushing and asphyxiation which could occur during site clearance. The mitigation measures set out in Section 3.7 below will ensure that the proposed development is compliant with the law and policy with respect to rabbits. All other habitats on site were assessed as currently being of poor suitability to support mammals including European Protected Species.

Furthermore, the turbine is to be located over 150 m inland from the bank of the Usk and on port land outside the vegetated bank area. Therefore, there will be no direct loss of riparian otter habitat through the footprint of the turbine and disturbance from the proposed activity is unlikely to be an issue. Also, no evidence currently exists that suggests otters are breeding in Newport and so disturbance to breeding sites (which are particularly vulnerable to disturbance) is considered unlikely.

3.4 Overwintering Birds

3.4.1 Baseline

The Severn Estuary is an important overwintering site for diverse range of migratory wildfowl and waders regularly supporting in excess of 60,000 individuals (Severn Estuary Partnership, 2006). As detailed in Appendix C the Severn Estuary qualifies as a Special Protection Area (SPA) and Ramsar for supporting passage and wintering bird populations of European and

International importance, the boundaries of which can be seen in Figure 2. The proposed turbine development at Newport is approximately 800 m outside of the boundaries of these designated sites however, the potential for an indirect effect needs to be considered.

A number of different potential indirect effects to birds by wind turbines have been highlighted by review papers on the subject (Langston and Pullan, 2003; Drewitt and Langston, 2006; Huddleston, 2010; Percival, 2003). These are:

- Displacement due to disturbance;
- Collision with the rotor blades or other parts of the turbine infrastructure;
- Barrier effects to the movement of birds as a result of the presence of turbines; and
- Habitat loss.

Further details about each of these impacts are presented in Appendix E, and have been used to help inform the assessment below.

Before fully committing to the proposed second wind turbine at the Port of Newport, ABP met with NRW on site to discuss the proposed turbine in relation to the potential impacts on birds. Following this meeting the survey requirements for overwintering birds were agreed with NRW (Appendix F). This methodology and results are discussed further below but in essence NRW accepted that the results of the survey provided enough information to allow an assessment of impacts on birds should a planning application for a second wind turbine at this site be submitted (Appendix G).

3.4.2 Methodology

Thomson Ecology was commissioned to undertake surveys to determine the level of bird activity on and around the proposed site (see Appendix H for full report).

As part of the work, a study of freely-available data was undertaken. Records were examined from online resources of the British Trust for Ornithology, and Gwent Bird Report records at Birdguides for bird species recorded within or near to the Severn Estuary SPA. In addition data collected from vantage point surveys undertaken in 2011/2012 to provide baseline data for the original turbine application were reviewed. During this survey overwintering bird data were collected for six hours per month for the period October 2011 to March 2012, totalling 36 hours. The results of the desk study were used to establish the selection of target species for the 2015 vantage point surveys and to establish whether any qualifying features (bird species) of the Severn Estuary SPA would be affected by the proposed wind turbine. Species were chosen if they were recorded within or near the Severn Estuary SPA and are particularly vulnerable to collision or are a species that is less manoeuvrable in flight, such as heavy swans and geese. Table 2 of Appendix H lists the target species chosen for the 2015 vantage point surveys from the data sourced during the desk study.

As agreed with NRW, a total of three survey visits were undertaken during February and March 2015. During each visit, the vantage point was surveyed for six hours, in two three-hour watches. Over the survey period (February to March) the vantage point was surveyed for a total of 18 hours. The survey area encompassed the proposed wind turbine location and a 500

m radius buffer, in line with the vantage point method guidelines published by Scottish Natural Heritage (SNH, 2014). These surveys were undertaken to collect information on flight behaviour of target species including flight direction, duration and height. A one hour walkover survey was also carried out per visit in between the two three-hour vantage point surveys. All bird species encountered were recorded, including target and secondary species. In addition, birds seen within any of the waterbodies adjacent to the site were also included.

3.4.3 Potential Effects of the ABP Newport Turbine

3.4.3.1 Survey results

During the 2015 vantage point survey, a total of five target species were recorded, one of which (Mallard) was recorded as being a qualifying interest feature of the Severn Estuary SPA. In addition, Mallard is an Amber-listed Bird of Conservation Concern. Mallard was recorded on two occasions during the vantage point surveys with a peak count of two individuals. In addition to the target species, a further 15 secondary species were recorded during the vantage point surveys undertaken. None of the secondary species are listed as qualifying interest features of the Severn Estuary SPA.

A total of 21 bird species were recorded within the site during the walkover surveys. None of these species was recorded flying through the location of the proposed wind turbine or within the operating height of the proposed wind turbine during the vantage point or walkover surveys. Of the species recorded, only Tufted Duck is listed as an SPA qualifying interest feature within the Severn Estuary SPA citation. Tufted Duck was recorded on one occasion during the walkover survey, with four individuals encountered.

3.4.3.2 Displacement due to disturbance

The proposed turbine site is currently expected to have limited functionality as a roosting habitat for birds. Any birds using the site are also likely to be reasonably habituated to human activity and noise through exposure to daily port related disturbance around the site and the existing wind turbines in the locality. Key habitat for waterbirds in the area (including the major roosts and feeding sites at the Newport Wetlands Nature Reserve, the Redshank roost on the lower Ebbw and the waterbird feeding habitat at the mouth of the Usk) are all located at distances greater than those cited as causing disturbance during both construction and operation (Appendix E). Therefore, no significant impact is expected to occur to waterbirds during temporary construction and decommissioning works.

3.4.3.3 Collision with the rotor blades or other parts of the turbine infrastructure

Direct mortality or lethal injury of birds can result not only from collisions with rotors, but also with towers, nacelles and associated structures such as guy cables, power lines and meteorological masts. A substantial amount of research on collision impacts has been undertaken in relation to both onshore and offshore wind farm development both in empirical studies (e.g. mortality counts, infrared monitoring) and predictive modelling of collision risk (DECC, 2009; Langston and Pullan, 2004). A number of factors influence collision risk (Band *et al.* 2005; Chamberlain *et al.* 2006), including:

- Ecological factors and species traits such as bird size, flight speed and the location of roost/feeding sites;
- Environmental parameters including weather and topography; and
- Wind turbine characteristics such as size of the blades and rotation speed.

Evidence suggests that birds flying in the vicinity of turbines are generally able to avoid collisions with turbines by altering direction or flying over the top (Jones, 2002). Collision rates are typically in the range of only 1 in 1,000-10,000 birds that fly through a wind farm (Percival, 2003). This is further emphasised by monitoring studies of strike rates from small-scale coastal or near shore wind farms. This research has shown that mortality rates are low, within a range of 0.01-3.4 per turbine bird strikes annually (Still *et al.* 1996; Painter *et al.* 1999; Pettersson, 2005; Musters *et al.* 1995; Musters *et al.* 1996; Winkelman 1995; Pedersen & Poulsen, 1991; Winkelman 1989 and Meek *et al.* 1993).

The major roosts in the area such as at the Newport Wetlands and St Brides/West Usk Lighthouse and the major feeding habitat along the mudflats at the mouth of the Usk and into the Severn Estuary are all located south and west of the proposed turbine site. As the site is not located between these different functional habitats, large flocks of waterbirds would not be expected to be flying over the site regularly. This is supported by the results of the overwintering bird survey which observed only very low numbers of waterbirds across the proposed development site (Appendix H). In addition, only two of the species observed were SPA qualifying interest features (Tufted Duck and Mallard). However, these species were not recorded passing through the location of the proposed wind turbine or within the operating height of the proposed wind turbine. Therefore, it is considered unlikely that the proposed wind turbine will have a detrimental effect on the population of Tufted Duck or Mallard at the nearby SPA or on the population of Mallard recorded on site. All other species recorded during the overwintering surveys were considered to be common and widespread, and none of the species recorded are particularly susceptible to collisions due to their high manoeuvrability in flight. For birds that do fly over the site (such as on migration), evidence suggests that collision rates would be expected to be very low (Appendix E). This is supported by the fact that no reports of bird strikes/mortality have been recorded during the operation of the existing wind turbine at the Port of Newport.

3.4.3.4 Barrier effects to the movement of birds as a result of turbines

Wind turbines have the potential to act as a barrier that could cause significant increased expenditure or lead to the disruption of linkages between feeding, breeding, moulting and roosting areas. However, as mentioned above, the site is utilised by a limited number of bird species, none of which were recorded passing through the location of the proposed wind turbine or within the operating height of the proposed wind turbine. Therefore, the proposed turbine is not expected to create a barrier to bird movements.

As a precautionary approach, in order to negate any cumulative effects from the two wind turbines on site, the proposed second wind turbine will be positioned as close as feasibly possible to the existing wind turbine (whilst still ensuring maximum efficiency) so that the two turbines together will act as one single object for birds to negotiate. Furthermore, the turbine is

to be positioned over 150 m from the boundary with the River Usk so that the turbines will not create a barrier to birds migrating along the River. Therefore, it is considered unlikely that the wind turbine will have a detrimental effect on waterbird species.

3.4.3.5 Habitat loss

The proposed turbine site is not considered important as a waterbird roost and the footprint of the turbine base is small and on an 'unvegetated' and 'tarmaced' area of the Port estate making habitat loss effects negligible.

3.5 Breeding Birds

3.5.1 Baseline

It is an offence to take, damage or destroy the nest of any wild bird whilst it is in use or being built. In addition any wild bird listed in Schedule 1 of the Wildlife and Countryside Act 1981 is protected against reckless disturbance while it is nest building, at a nest containing eggs or young, or disturbance of their dependent young. This means that site clearance works must not take place in areas of buildings, vegetation, shrubs or trees with a nest in use until the young have flown the nest. If the nest in use is of a bird on Schedule 1 (i.e. a protected species) then disturbance by any nearby works are also restricted.

As mentioned above, the Preliminary Ecological Appraisal identified that the dense scrub and scattered scrub within the survey area had the potential to provide habitat for breeding birds and ground nesting birds. Therefore, ABP commissioned Thomson Ecology to undertake breeding bird surveys across the survey area.

3.5.2 Methodology

Thomson Ecology was commissioned to undertake surveys to determine the level of breeding bird activity on and around the proposed site (see Appendix I for full report). The survey area was visited on four occasions during the period 21st May to 17th June 2015 by the same experienced ornithologist. The surveys were conducted during the period between sunrise and noon. During each walkover the location and species of all birds encountered (including both those seen and those heard) were recorded on a map using standard BTO symbols. Additional information was recorded on bird activity, such as singing or calling, using standard map symbols.

3.5.3 Potential Effects of the ABP Newport Turbine

3.5.3.1 Survey results

The surveys recorded a total of 31 bird species within the survey area during the four visits. This included five species considered to be non-breeding as suitable nest sites or habitat were not present. Two bird species protected under Schedule 1 of the Wildlife and Countryside Act 1981 were found during the survey, Cetti's warbler and little ringed plover. Three possible Cetti's warbler breeding territories and one probable little ringed plover territory were identified

during the survey but none of these were within the site and the nearest recording of a Cetti's warbler was approximately 200 metres outside the site boundary and for little ringed plover approximately 150 metres outside the site boundary.

There were no Species of Principal Importance (Section 42 of the Natural Environment and Rural Communities Act, 2006) or birds of Red or Amber conservation concern recorded within the site, with the exception of lapwing. Although lapwing was confirmed breeding in the survey area it was in very low numbers (one pair confirmed, and one probable). The site would not qualify as an important breeding site for this species under JNCC guidelines (JNCC, 2012). Furthermore, only one lapwing was recorded during the survey within the site and this was on the south western boundary of the site. Overall the proposed wind turbine is considered to have no adverse effects on breeding birds.

3.6 Migratory Fish

3.6.1 Baseline

The sea lamprey, river lamprey and twaite shad are features of the Severn Estuary and River Usk SAC. The River Usk is one of the only four sites in the UK where a known breeding population of twaite shad occurs (JNCC, 2006). The area also supports a healthy population of sea lamprey (*Petromyzon marinus*) and river lamprey (*Lampetra fluviatilis*). The Usk is considered to provide exceptionally good quality habitat likely to ensure the continued survival of the species in this part of the UK (Maitland, 2003).

3.6.2 Potential Effects of the ABP Newport Turbine

A thorough review of the sensitivity of fish species to potential construction noise was undertaken as part of the application for the original ABP wind turbine. This has been updated with any new literature and is included as Appendix E.

It was acknowledged that the extent to which noise from piling on land (as is proposed for the Newport turbine) will transmit through to the marine environment and be moderated by the ground conditions (which will be influenced by geology among other factors) is less well understood than the effects on fish species of noise that occurs directly within the marine environment. The turbine will be located around 150 m inland from the estuary. Noise and vibration pressure will therefore have to travel through land or air before it reaches the water column. Evidence that on-shore piling may impact on fish in nearby aquatic ecosystems is limited.

In the absence of any data on land based piling impacts on fish and therefore assuming a very worst case scenario based on evidence from piling undertaken directly into the marine environment (and not moderated by ground conditions), it was considered possible in the original ABP turbine application that temporary (construction period only) behavioural effects on vibration-sensitive shad species could occur across the width of the river near the proposed turbine location (approximately 300 m). The potential for migratory shad to be present in the Usk Estuary is at a minimum between August and March. Overall it was concluded that there is

no risk of fatality and only a very low risk of any behavioural response occurring in migratory species, including sensitive species such as shad.

3.7 Mitigation

3.7.1 Invasive Plant Species

Any stands of Japanese knotweed that are unlikely to be disturbed or affected by the development will be subject to a rigorous herbicide spraying programme, consisting of several treatments each year over a minimum period of three years. Any stands of Japanese knotweed and their rhizomes that will be disturbed during construction will be excavated to be treated in a designated location on site.

All appropriate measures will be taken to ensure that plant fragments cannot be transported off site during site clearance and all contractors will receive toolbox talks on how to prevent spread and contamination of Japanese knotweed.

3.7.2 Protected and Priority Species

Any animal holes, such as the rabbit burrows on site, that will be affected during construction, will be assessed by soft-stopping the holes with grass to see if the entrances are in use. If it is possible to show that the burrow is not in use then the burrow will be destroyed without any risk of causing harm to any animals occupying the burrow. If the burrow is in use, it will be dug out with hand tools or a mini-digger under an ecological watching brief to ensure that no animals, such as rabbit, are harmed.

3.7.3 Ecological Enhancements

The site will incorporate enhancements for the benefit of wildlife in line with national planning policy. The following enhancement measures will be undertaken:

- Retention of natural vegetation around the edge of the survey area including dense scrub on the Port/river boundary and scattered scrub to the south east of the proposed turbine location to retain suitable breeding areas for birds; and
- Retention of the scattered scrub / swamp habitat to retain biodiversity within the site boundary.

A large majority of the site is hard standing which has no value to birds for foraging or roosting habitat. However, there are a number of areas of grassland and scrub around the proposed wind turbine, which could be utilised as foraging habitat by bird species. Specifically, it is recommended that habitat management be undertaken around the wind turbine, in order to make the habitat less attractive to the target bird species recorded during the survey.

These areas will be kept short by means of cutting and mowing in order for the habitat around the proposed turbine to remain less attractive for foraging. This should encourage any birds to utilise other parts of the site or nearby sites for foraging, away from the proposed turbine area.

Vegetation clearance will either be undertaken outside the bird breeding season (1st September - 31st March) or under an ecological watching brief.

3.7.4 Migratory Fish

It is likely that any effects on shad will be minor, temporary and only result in a behavioural (not fatal) response during the migratory period. No formal recommendations were therefore made for project mitigation. However, in the event that further reassurances were required from NCC and NRW as to the absence of any effects, the construction work could be undertaken during an environmental window when migratory shad are not in transit (between August and March).

3.8 Conclusions

The development is unlikely to have a significant negative effect on nature conservation and biodiversity, including the habitats and species for which the nearby conservation sites are designated, for the following reasons:

- Works will be confined to the hard standing ground within the Port estate;
- The habitats on site are not synonymous with those of the designated sites and therefore are unlikely to be used by species that are features of interest to the protected sites;
- Pollution will be controlled during construction works in accordance with Environment Agency pollution prevention guidelines (Environment Agency, 2007); and
- Any dust generating activities will be identified and appropriate measures will be implemented to prevent dust pollution incidents following guidelines set out by the pollution prevention guidelines (Environment Agency, 2007).

4. Noise

4.1 Construction

Typical sound pressure levels at a distance of 10 m from the source of noise for typical activities that could be used in the construction of a wind turbine are provided in Table 1. The sound pressure levels have been identified from British Standard (BS) 5228 (2009). The L_{Aeq} index is the commonly used noise parameter in the assessment of the impact of airborne noise levels. It is termed the equivalent continuous sound pressure level and is the energy averaged value of the actual time varying A-weighted sound pressure level over the monitoring period. The term “A-weighted” means that the measurements have been made using a standardised electronic filter that approximates to the frequency response of the human ear. This parameter is also used as a measure of the ambient noise level i.e. the all-encompassing sound at a particular location.

Table 1. Sound pressure levels for potential turbine construction activities

Construction Component	Equipment (Reference to BS 5228, 2009)	Continuous Sound Pressure Levels (L_{Aeq}) dB(A) at 10m*
Breaking up concrete	Breakers/pulverisers (C1.1-8)	72-92
Ground excavation/earthworks	Dozer/tracked excavator (C2.10-25)	68-81
Directional drilling	Directional drill (generator)	77
Piling	Steel piling (C12.1-2)	68-86
Piling	Driven cast <i>in situ</i> piling (C12.3-34)	61-107
The exact specification will be subject to the eventual design and build contract. * The value of the equivalent continuous A-weighted sound pressure level determined at a distance of 10m from, and over the period of, a given activity. The activity may involve the operation of more than one item of plant.		

The loudest noise generated during the construction period is likely to be from pile driving and the break-up of any concrete (Table 1).

4.1.1 Relevant Legislation and Guidance Relating to Construction Noise

The basis for assessing the noise impact of the proposal is guidance contained in Technical Advice Note (TAN) 11 (Wales) “Noise”, which identifies various standards and documents to be used. TAN 11 (paragraph B19) identifies BS 5228 for detailed guidance on assessing noise from construction sites. TAN 11 refers to the 1984 version of the BS 5228, which has since been updated in 2009. BS 5228 (2009) provides a framework for good practice and guidance on assessing noise impact from construction activities and discusses the factors that need to be considered when setting criteria for construction sites.

The Wilson Committee on the Problem of Noise (1963) recommended that outside the windows of the nearest occupied dwelling a noise level of 75 dB(A)¹ in an urban area and a level of 70dB(A) in suburban or rural areas should not be exceeded by noise from construction work.

¹ Sound pressure measured in decibels using an A-weighted sound level filter on the sound meter.

This serves as a useful general guideline but is not sufficiently definite on whether the quoted levels can be exceeded. Furthermore, timescales are not considered, i.e. whether a construction project taking several days should be treated differently from one taking several years.

The original BS 5228 (1975), suggested noise reference levels for construction work based on the Wilson Committee report recommendations but was more precise, recommending that generally at 1 m outside the nearest noise sensitive building the equivalent continuous sound level over a 12-hour period (07.00 to 19.00 hours) should not exceed 75 dB(A). This gave some flexibility, allowing periods at a high level (exceeding 75dB(A)) compensated by extended quieter periods. For any work in the evening, the BS5228 suggests that a level 10dB(A) below the daytime limit may be appropriate.

Based upon the above discussion, a limit of 75dB $L_{Aeq,12h}$ is considered a suitable criteria for the assessment of this development during the day and a limit of 65dB $L_{Aeq,12h}$ is considered appropriate for work carried out at night.

4.1.2 Methodology

Noise level assessments have been undertaken to determine the worst-case level of noise at the closest human receptors to the turbine construction, according to the BS 5228 (2009) activity L_{Aeq} method. The activity with the highest sound pressure levels has been used for these predictions to provide a worst case, i.e. impact piling with maximum continuous source levels of 107dB(A) at 10m (Table 1). The A-weighting characteristic is used to give some frequencies more weight or importance than others, and can also be thought of as a tone control. A-weighting is used to measure hearing risk and for compliance with regulations that specify permissible noise exposures in terms of a time-weighted average sound level or daily noise dose. Sound levels for piling at different distances are provided below in Table 2 below.

Table 2. Predicted sound levels for piling at different distances

Distance	Noise Level (dB L_{Aeq})
100 m	77
150 m	74
200 m	71
300 m	67
500 m	62
1,000 m	57
1,700 m	38

(Method derived from: BS 5228, 2009)

The L_{Aeq} values in Table 2 were corrected for attenuation due to propagation over hard ground (i.e. surfaces which reflect sound such as paving, asphalt and water) at different distances using the calculations in BS 5228 (2009). L_{Aeq} values have also been corrected for reflections and screening. The BS 5228 (2009) provides an approximate attenuation of 5dB when the top of the plant is just visible to the receiver over the noise barrier and of 10dB when the noise screen completely hides the sources from the receiver. There are buildings and walls between the proposed wind turbine and the sensitive receptors, and thus an attenuation of 10dB has

been assumed. Attenuation due to air absorption has been ignored for the purposes of this assessment (i.e. predictions are conservative, erring on the side of caution). Actual noise levels from construction are therefore likely to be lower than those documented here. It is also important to note that at distances over a few hundred metres, noise predictions should be treated with caution because of the increasing importance of meteorological effects, particularly wind speed and direction.

4.1.3 Potential Effects of the ABP Newport Turbine

The assessment of construction noise has considered the very worst-case scenario, assuming continuous piling both day and night, over a 24 hour period (although 12 hour working days are considered to be more likely). Continuous noise levels at the nearest residential areas (a single isolated house is located at the west end of Stephenson Street, adjacent to the Transporter Bridge, approximately 1350 m away and the nearest group of residential properties are at Pye Corner, with the closest at a distance of about 1800 m from the proposed wind turbine site) as a result of the piling are predicted to be low, between 38-57dB L_{Aeq} , 24h. This is well below the BS 5228 (2009) 75dB L_{Aeq} , 12h construction noise limit during the day and 65dB L_{Aeq} , 12h limit during the night. In addition, noise levels as a result of piling are considered to be well below the background noise levels recorded by Xodus at the nearest residential properties (Appendix J).

4.1.4 Mitigation

For staff working at the Port of Newport at distances >150 m from the turbine site, noise levels are below the 75dB L_{Aeq} , 12h construction noise limit during the day. The area within 150 m of the turbine is not used extensively by port workers. However, a full risk assessment will be undertaken for any workers in this area as noise levels could be above the 75dB L_{Aeq} , 12h when piling activity is being undertaken. A range of mitigation and safety practises exist to help reduce the effects of piling noise, including:

- Introducing a non-metallic dolly between the hammer and the driving helmet. This will prevent direct metal-to-metal contact;
- Further noise reduction can be achieved by enclosing the driving system in an acoustic shroud;
- Use of ear protectors for all staff working in very close proximity to the piling; and
- Undertaking potentially noisy construction activity when fewer workers are around.

Further advice on reducing the effects of piling noise can be found in BS 5228 (2009).

4.2 Operation

The nearest group of residential properties are at Pye Corner, with the closest at a distance of about 1800 m from the proposed wind turbine site. The nearest isolated property is a single house at the west end of Stephenson Street, adjacent to the Transporter Bridge (1350 m away). There is a small community at Nash to the south-east of the site at approximately 1900 m. The conurbation of the City of Newport lies to the north of the A48, a busy dual carriageway, with the properties at the southern end of Mendalgief Road being the nearest to

the wind turbine site. To the west of the site is the village of Duffryn with the farmhouse at New Dairy Farm being the nearest residence.

4.2.1 Methodology

Xodus were commissioned to undertake an assessment of the potential impact of the expected levels of noise from the wind turbine on the community surrounding the port. A measurement and assessment protocol was agreed with NCC containing full details of the assessment approach and methodology (Appendix J).

The protocol included two weeks of unattended noise measurements at Pye Corner House and New Dairy Farm. These unattended locations were agreed to be representative of the closest noise sensitive receptors to the port in opposite east and west directions from the proposed wind turbine location. It was agreed that the unattended survey would be supplemented with some attended measurements at three locations to the north and south of the proposed wind turbine location, at Mengaldief Road, Stevenson Street and Nash to ensure that the unattended measurements were representative of the communities surrounding the port.

Xodus used noise data from the E82 wind turbine (the existing wind turbine) to predict sound pressure levels during operation. A full methodology is included in Appendix J and the position of the site and the measurement locations are shown in Figure 1 of Appendix J.

4.2.2 Potential Effects of the ABP Newport Turbine

Measurements show that should the proposed wind turbine be installed, the resultant sound pressure levels at Pye Corner House and New Dairy Farm will be well below the ETSU-R-97 limits (Appendix J). Whilst there is no evidence from the manufacturers of any significant levels of tonal noise for the selected wind turbines, even if any tonal noise was present, and a tonal penalty correction was needed to be made to the ETSU noise criteria, the noise levels from the wind turbines would still be well below the ETSU noise limits.

The results of the attended survey show that background L_{A90} noise levels at the three attended locations were higher than those at Pye Corner House, the nearest unattended monitoring point. Assuming similar dependency of background levels on wind speed, the noise limits at each of the attended monitoring locations would be higher than those at Pye Corner House. At the attended locations, L_{A90} sound pressure levels during operation of the wind turbine are predicted to range from 25 dBA at Mengaldief Road to 28 dBA at Stevenson Street.

Therefore, it is concluded that the noise levels at these locations during operation of the wind turbine would not exceed any limit as derived from the ETSU methodology and therefore it is considered that there will be no adverse noise impact due to the operation of the wind turbine. It should be noted that this assessment has been made with the original wind turbine in operation. Therefore no mitigation measures to ameliorate effects are considered to be needed.

5. Landscape and Visual Impact

5.1 Baseline

It is realised that the interrelationship between the proposed wind turbine and the existing landscape in which it will be seen is of key importance to its visual impact. The proposed development site is located on a predominantly pre-developed or brownfield area within a highly industrialised location. During the field survey (Section 3.3), the site was found to support dense scrub, scattered scrub, swamp, ephemeral/short perennial, bare ground and buildings. The proposed development is not located within a designated landscape protection area. The current industrial landscape is further shown in Images 4 and 5.

The placement of turbines can also cause visual disturbance and associated social/economic effects where the rotating blades cast moving shadows on receptors (e.g. houses, roads and places of work). This is referred to as 'shadow flicker'.



Image 4. Existing wind turbines (single ABP turbine and two Solutia wind turbines)



Image 5. View from proposed development site looking north-east towards the existing ABP Wind Turbine

Within NCC's Screening Response, further visual information was requested to understand the visual interaction between the proposed turbine and local transporter bridge. An approach was agreed with NCC following the same assessment as undertaken for the original proposed wind turbine whereby a photomontage would be produced including the proposed and existing wind turbines as well as the transporter bridge (Appendix K).

5.1.1 Methodology

A panoramic visualisation was produced including the existing transport bridge, the two Solutia turbines and the existing ABP wind turbine as well as the proposed second ABP wind turbine (Figure 4). Figure 5 shows the photographer position in relation to the existing Solutia turbines, which are positioned 1300 m north-east from the proposed turbine placement location, the existing ABP wind turbine, located 335 m north-east of the proposed turbine location, and the transporter bridge, located 1750 m north of the proposed turbine location. To further describe the environment, Images 6 and 7 show photographic visualisation of the turbine in place.



Image 6. Visual representation of the proposed turbine in Newport

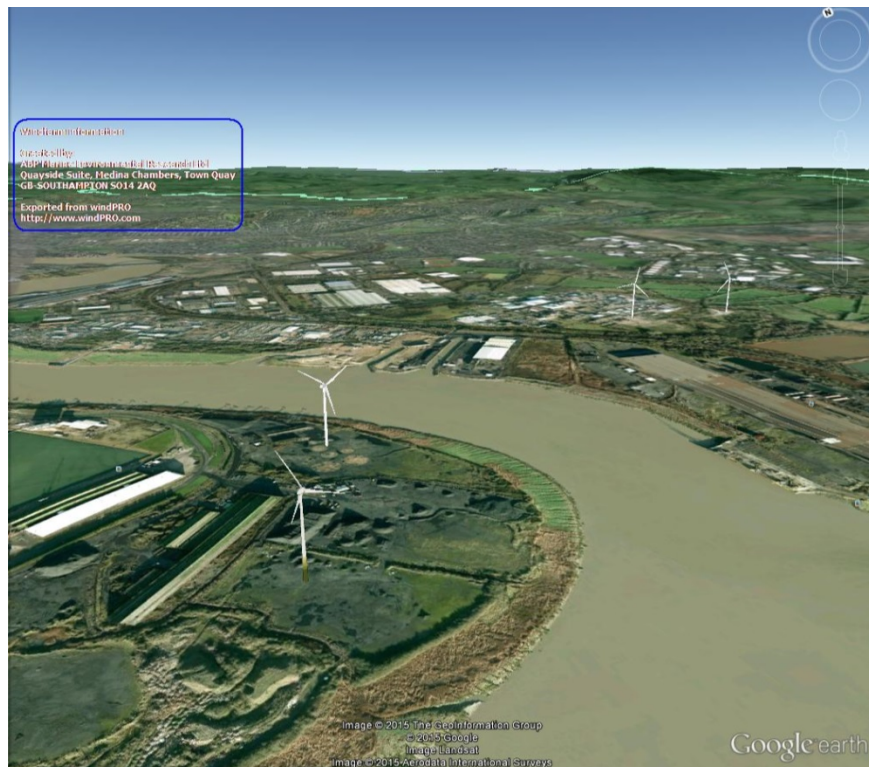


Image 7. Visual representation of the proposed turbine (foreground) in relation to the three existing turbines in Newport

To support both the visual environment and the socio-economic impact reviews, the characteristics of any potential flicker effect from the proposed turbine have also been reviewed. The theoretical extent of shadow flicker effects was calculated based on how often, and at which intervals, a specific neighbour or area will be affected by shadows generated by one or more wind turbines. The outputs are presented in Figures 6 and 7. These figures show the spatial extent and duration of the potential shadow flicker effects from the turbine, as calculated from a range of relevant factors including: turbine/blade height, speed of revolution, sun aspect, season etc.

5.2 Potential Effects of the ABP Newport Turbine

There is considered to be no significant adverse impact on the landscape and visual environment because the position of the proposed turbine is within an industrial port complex, with similarly sized buildings nearby and existing industrial and dock related development. The turbine will be positioned in close proximity to the existing transporter bridge, 1,750 m north of the proposed turbine, the Solutia mouth Power Station, located 700 m south of the proposed turbine, and Llanwern Steelworks, located 5,250 m north-east of the proposed turbine, which highlight the industrial nature of the existing landscape surrounding Newport. In addition three turbines have already been erected in close proximity of the proposed turbine (see Figure 5 and Image 4). The proposed turbine will be positioned well away from residential areas.

It is considered that the proposed turbine development will have a negligible impact on landscape and visual impacts as although the scale of the development will result in the turbine forming a new element within the landscape, it is within an already industrial background. Therefore, no mitigation measures are required.

When considering the actual effects of shadow flicker, there are no definitive statutory levels of impacts (in hours of shadow/year) that are deemed to be significant and thus harmful to receptors. As an indicator this assessment has considered the proximity and annual exposure guidance provided by various international parties (Table 3).

Table 3. Guidance provided by international parties on the effects of shadow flicker

International Party	Guidance
Germany	A court case ruled that 30hr of actual shadow flicker per year was tolerable at a residential property (referring to times where the property is actually used by people who are awake).
Scottish Power	A minimum separation of 1km between a turbine and the nearest occupied dwelling is maintained to overcome potential problems of noise and shadow flicker (ETSU and DTI updated).
CCW Policy	Request that information is provided on the extent of shadow flicker and the likely effect upon nearby residents (both current or future), particularly any within 20m of the turbine and on drivers using nearby public highways.

International Party	Guidance
UK Onshore Wind Energy Planning Conditions Guidance Note	The document indicates that the level of adverse impact of the effects of shadow flicker is dependent on the operating frequency (speed): 'health effects arising from shadow flicker will not have the potential to occur unless the operating frequency of a particular turbine is between 2.5 and 30Hz (hertz) and all other pre-conditions for shadow flicker effects to occur exist' (TNEI, 2007).
DECC	Recommends that 'the intensity of the shadow of the rotating blades from turbines at distances from such buildings of 10 rotor diameters and beyond is sufficiently diminished so as to have no significant impact on occupied buildings' (DECC, 2011).

The shadow flicker assessment found that the most significant effect was typically observed in the immediate vicinity of the turbine, within the port boundary and over the adjacent estuary to the south and east, across the waterfront and dock/industry buildings to the north-east. There do not appear to be any residential properties in this area and many of the buildings are commercial and in some instances these are vacant. In particular, the proposed turbine is not located within 10x rotor blade diameters (820 m) of any dwellings. Road traffic can be a concern but the nearest public road outside the dock estate (Corporation Road) is not affected by shadow flicker based on the worst-case predictions that have been used here.

Table 4. Shadow flicker assessment receptors locations

Receptor ID	Description of Location	Direction Facing	Worst Case Scenario Shadow Hr per Year
A	Transporter Bridge	SE	0
B	Sewage Operation Plant	NW	10.34
C	Surrounding Field	W	3.34
D	Corporation Road	SW	0
E	Industrial Complex	S	0
F	Alexandra Dock	SE	20.22
G	Coal loading area	SW	58.26
H	Coal storage/Industrial complex	SE	447.33
I	Old Wooden Dock	SE	0

It is concluded that the shadow flicker effects will have no significant effect and no mitigation measures are proposed.

6. Flood Risk

6.1 Baseline

The proposed development will be micro-sited so that it falls outside of the Environment Agency's Flood Zones. Therefore, it is not envisaged that the proposed development will have any issues with regard to flood risk.

However, following best practice the turbine and associated infrastructure will be designed to withstand potential flood risk. The existing substation has been installed on raised foundations. The height of the raised foundation creates a pedestal to will prevent the ingress of water into the substation. Furthermore, the access track will be designed to provide optimal drainage characteristics in order to reduce long term damage when flood levels subside.

7. Historic Environment

7.1 Baseline

Within the application for the original wind turbine at the Port of Newport known and potential archaeology sites within 1 km of the potential turbine placement location were reviewed. Neither the immediate area of turbine placement, nor the surrounding 1 km area, was found to contain any designated archaeological features. Notable recorded archaeological features in the surrounding 1.5 km area comprise the following:

- The Wentloog Levels, classed as an Archaeologically Sensitive Area (ASA);
- The recorded vessel remains of a medieval boat; and
- The Transporter Bridge which is a Grade II listed building.

7.2 Potential Effects of the ABP Newport Turbine

The proximity of the site to the Wentloog levels and the recorded medieval vessel remains indicates that there is a potential risk for preserved buried archaeological deposits to be impacted by turbine foundation excavation and piling, and as a result of ground disturbing activities related to plant movement across the site and site access requirements. However, during excavation works for the existing turbine no finds of archaeological significance were discovered. Therefore, given that there is no extant archaeological evidence at the site and the area has already been heavily altered by past dock-side activities, together with the fact that only one turbine is to be installed, the risk of affecting archaeological remains are likely to be very low.

There are no indirect significant effects on the visual setting of historic sites or any possible compromise of the visual amenity of the wider landscape, such as the Wentloog Levels (i.e. no detracting from historic character, sense of place, tranquillity and remoteness is anticipated). This is because the position of the proposed turbine is within an industrial port complex, with similarly sized building and existing turbines nearby.

It is not envisaged that the proposed development will have a negative impact on the archaeology and cultural heritage present in both the immediate and wider surrounding area and thus no mitigation measures are proposed.

8. Cumulative

Cumulative effects are those that accrue over time and space from a number of developments. The effects of the proposed turbine development are considered in conjunction with the potential effects from other projects or activities which are located within a geographical scope where environmental impacts could act together to create a more (or less) significant overall effect. An example could be the culmination of visual intrusion, noise and vibration adversely affecting a residential dwelling.

Three turbines have already been constructed in the area, two by Solutia and one by ABP. Given that the existing turbines are fully operational the baseline assessments for each of the features considered above have included the operation of these turbines, and all subsequent impacts have been assessed as insignificant. Given that the development is located within an industrial port complex, there is a comparatively low risk posed by one additional turbine.

9. References

Band, W., Madders, M. and Whitfield, D. P., 2005. Developing field and analytical methods to assess avian collision risk at wind farms. In *Birds and wind power*. (ed. M. De Lucas, G. Janss & M. Ferrer). Barcelona: Lynx Editions.

BS 5228, 2009. Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

Chamberlain DE., Rehfisch MR., Fox AD., Desholm M. & Anthony SJ, 2006. The effect of avoidance rates on bird mortality predictions made by wind turbine collision risk models. *Ibis* 148, 198-202.

CIEEM Chartered Institute of Ecology and Environmental Management, 2006. Guidelines for Ecological Impact Assessment in the United Kingdom. Chartered Institute of Ecology and Environmental Management, Winchester.

Department of Energy and Climate Change (DECC), 2011. National Policy Statement for Renewable Energy Infrastructure (EN-3). July 2011.

DECC 2009. UK Offshore Energy Strategic Environmental Assessment: Future Leasing for Offshore Wind Farms and Licensing for Offshore Oil & Gas and Gas Storage.

Drewitt A.L. and Langston R.H.W., 2006. Assessing the impacts of wind farms on birds. *Ibis* 148, 29-42.

Environment Agency, 2007. Works and maintenance in or near water: PPG5 Pollution Prevention Guidelines.

Huddleston, J. (ed.), 2010. Understanding the Environmental Impacts of Offshore Windfarms. COWRIE. Information Press, Oxford, UK.

JNCC , 2006. Background to vertebrate species: Fish (Allis shad) Joint Nature Conservation Committee
<http://www.jncc.gov.uk/ProtectedSites/SACselection/species.asp?FeatureIntCode=S1102>

Jones, G., 2002. Wind turbine extension Plan, Seaforth Dock – Avifauna Impact Study. Short Summary of results from initial fieldwork December 2001 to January 2002.

Langston, R.H.W. and Pullan, J.D., 2003 Windfarms and birds: an analysis of the effects of wind farms on birds, and guidance on environmental assessment criteria and site selection issues. Report T-PVS/Inf (2003) 12, by BirdLife International to the Council of Europe, Bern Convention on the Conservation of European Wildlife and Natural Habitats. RSPB/BirdLife in the UK.

Maitland PS, 2003. Ecology of the River, Brook and Sea Lamprey. Conserving Natura 2000 Rivers Ecology Series No. 5. English Nature, Peterborough

Meek, E.R., Ribbands, J.B., Christer, W.B., Davy, P.R., Higginson, I. 1993. The effects of aero-generators on moorland bird populations in the Orkney Islands, Scotland. *Bird Study* 40: 140-143.

Musters, C.J.M., Noodervllet, M.A.W and keurs ter W.J. 1995. Bird casualties and windturbines near the kreekrack sluices of Zeeland. *Environmental Biology*. Leden University.

Musters, C.J.M., Noodervllet, M.A.W and keurs ter W.J. 1996. Bird casualties caused by a wind energy project in an estuary. *Bird Study*, 43 124-126.

Natural England, 2009. Natural England Technical Information Note TIN059. Bats and single large wind turbines: Joint Agencies interim guidance.

Newport City Council (NCC), 2012. Newport Local Development Plan 2011-2026

Newport City Council (NCC), 2010. Newport's Community Strategy 2010 – 2020

Painter, A., Little, B. and Lawrence, S. 1999. Continuation of bird studies at Blyth Harbour wind farm and the implications for offshore wind farms. DTI ETSU report no W/13/00485/00/00.

Pedersen, M.B. and Poulsen, E. 1991. Impact of a 90m/2MW wind turbine on birds: Avian responses to the implementation of the Tjaereborg wind turbine at the Danish Wadden Sea. *Danske Vildtundersøgelser Hæfte 47, Danmarks Miljøundersøgelser Afdeling for Flora- og Faunaøkologi*.

Pettersson J., 2005. The impact of offshore wind farms on bird life in southern Kalmar Sound, Sweden. A final report based on studies 1999–2003. Report to the Swedish Energy Agency. ISBN 91- 631-6878-2. 124pp.

Percival, S.M., 2003. Birds and wind farms in Ireland: A review of potential issues and impact assessment.

Severn Estuary Partnership, 2006. The habitats and species of the Severn Estuary. A basic introduction for developers and decision makers.

Scottish Natural Heritage (2005 – revised 2014). Survey Methods for use in Assessing the Impacts of Onshore Wind Farms on Bird Communities. Scottish Natural Heritage, Edinburgh, Scotland.

Stace, C., 2010. *New Flora of the British Isles* (third edition). Cambridge University Press, Cambridge.

Still *et al* 1996. The Effect of Wind Turbines on the Bird Population at Blyth Harbour, Northumberland. ETSU W/13/00394/REP.

TNEI, 2007. Onshore Wind Energy Planning Conditions Guidance Note. A report for the Renewables Advisory Board and BERR.

TÜV SÜD PMSS, 2015a. ABP Newport 2: Construction Report. Project Management Support Services, June 2015.

TÜV SÜD PMSS, 2012b. ABP Newport 2: Aviation Effects Report. June 2015.

TÜV SÜD PMSS, 2012c. ABP Newport 2: Telecommunications Effects Report. April 2015.

Welsh Government, 2014. Planning Policy Wales. Edition 7. Welsh Government, July 2014.

Welsh Government, 2012. Energy Wales: A Low Carbon Transition. Welsh Government, 2012.

Welsh Government, 2010a. A Low Carbon Revolution – The Welsh Assembly Government Energy Policy Statement March 2010

Welsh Government, 2010b Generating Your Own Energy A planning guide for householders, communities and businesses. Welsh Assembly.

Welsh Government, 2010c Generating Your Own Energy The Current Planning Regulations. Welsh Assembly.

Welsh Government, 2010d Generating Your Own Energy Wind. Welsh Government.

Welsh Government, 2005. Planning Policy Wales. Technical Advice Note 8: Planning for Renewable Energy. Welsh Assembly.

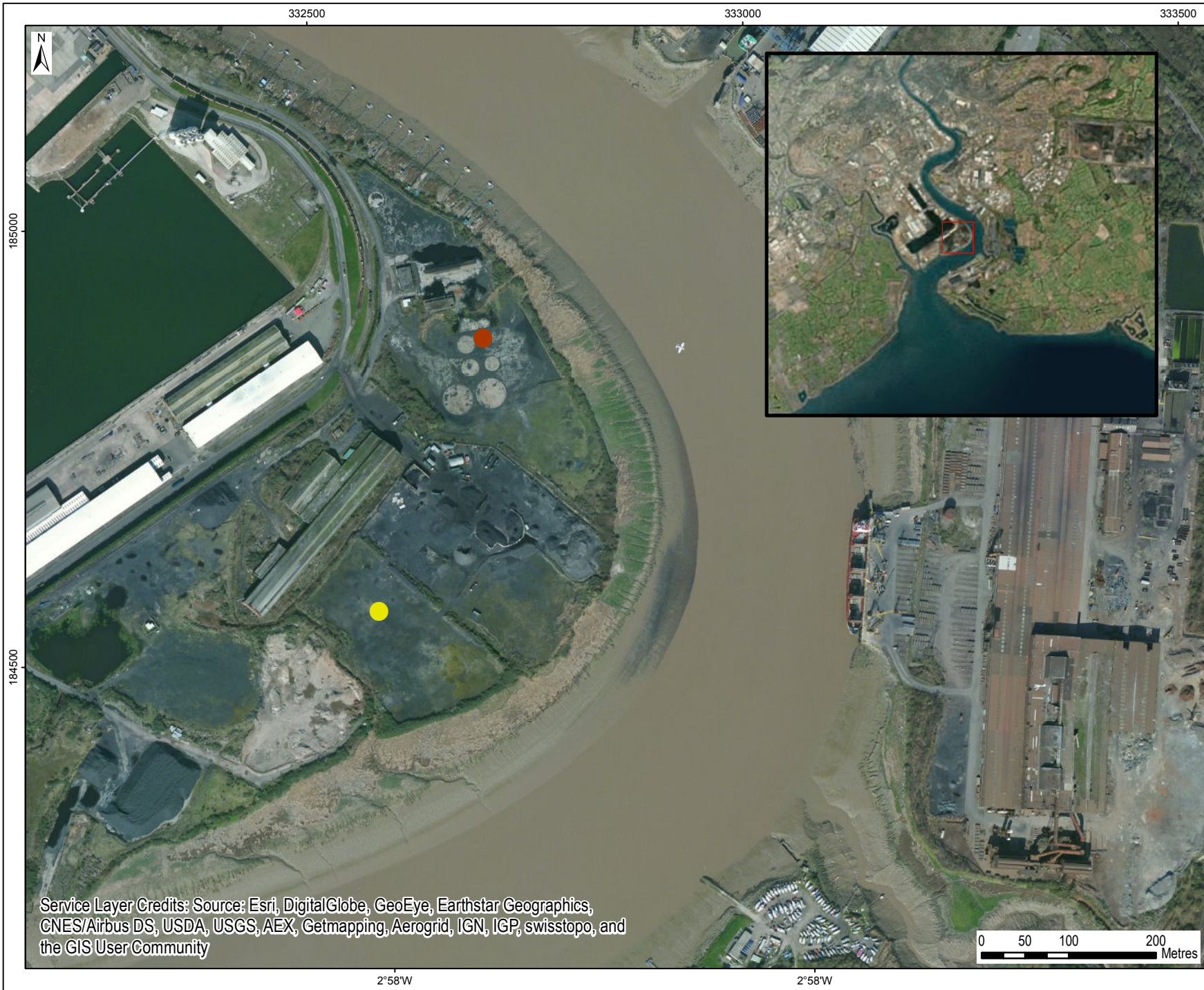
Welsh Government - Planning Portal website:
<http://gov.wales/topics/planning/policy/tans/?lang=en>

Winkelman, J.E. 1989. Birds and the wind park near Urk: collision victims and disturbance of ducks, geese and swans. RIN Rep. 89/15. Rijkinstituut voor Natuurbeheer, Arnhem, The Netherlands.

Winkelman, J.E. 1995. Bird/wind turbine investigations in Europe. In Proceedings of the National Avian-Wind Power Planning Meeting 1994.

Figures





Proposed Wind Turbine

Existing Wind Turbine

Date	By	Size	Version
Jul 15	DLW	A4	1
Coordinate System	British National Grid		
Projection	Transverse Mercator		
Scale	1:6,000		
QA	TAP		
Fig_1_TurbineLocs.mxd			
Produced by ABPmer			

51°33'N

2°58'W

184500

332500

333500

185000

0

50

100

200

Metres

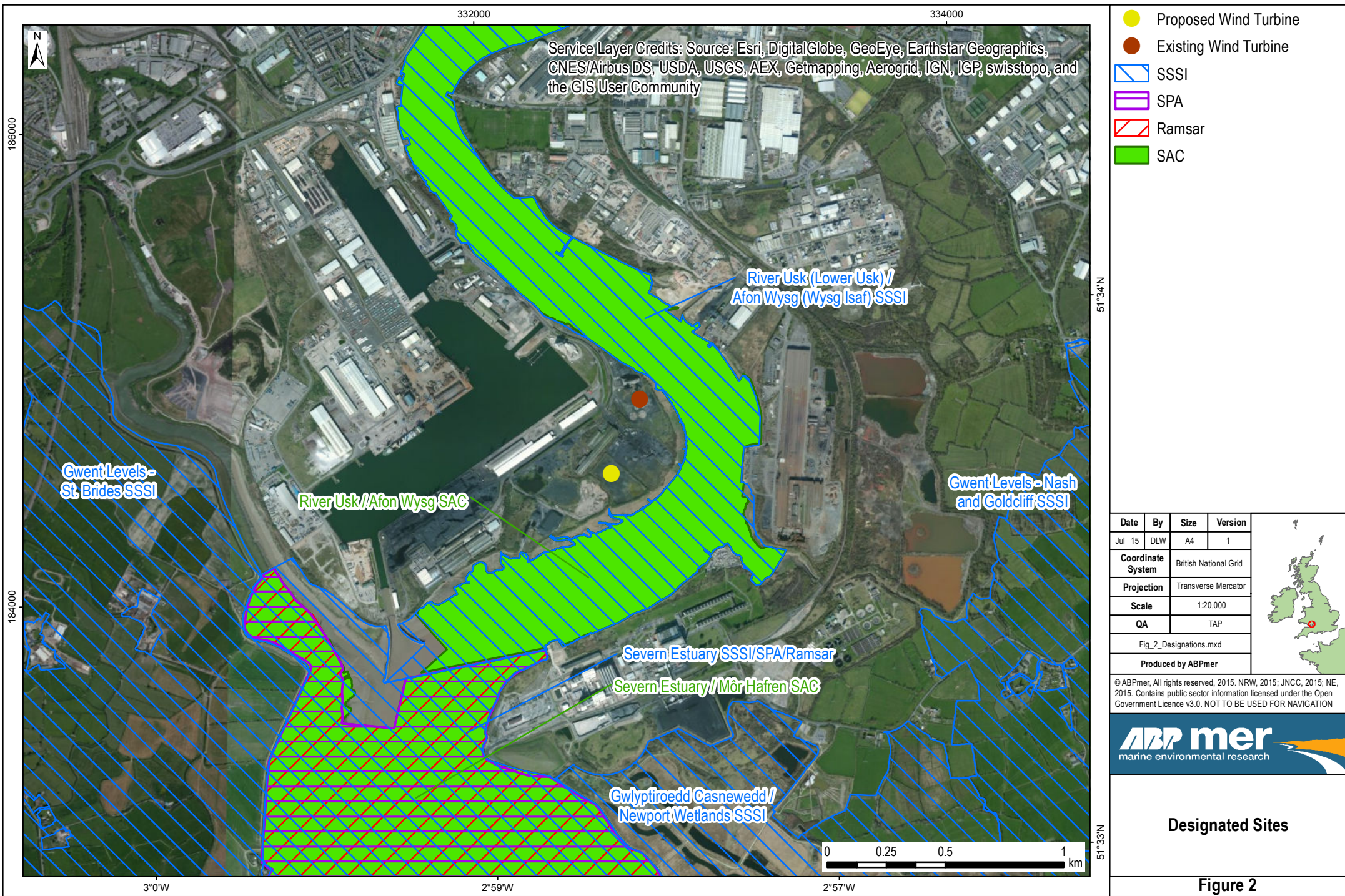
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

ABPmer

marine environmental research

Proposed Turbine Location and Existing Wind Turbine at the Port of Newport

Figure 1





Date	By	Size	Version
Jul 15	DLW	A4	1
Coordinate System		n/a	
Projection		n/a	
Scale		n/a	
QA		TAP	
4302 - Fig_4_Visualisation.mxd			
Produced by ABPmer			



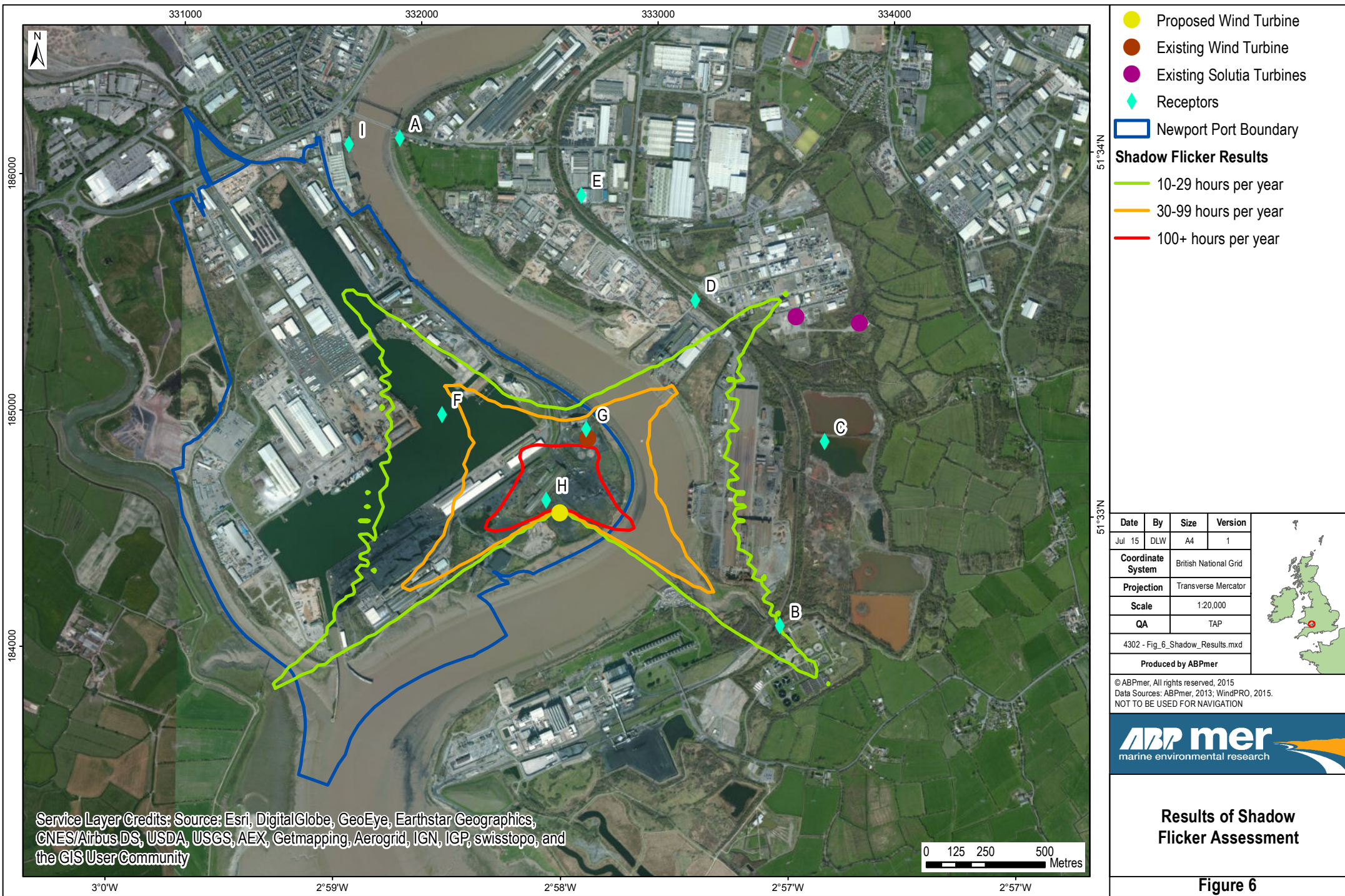
© ABPmer, All rights reserved, 2015
NOT TO BE USED FOR NAVIGATION

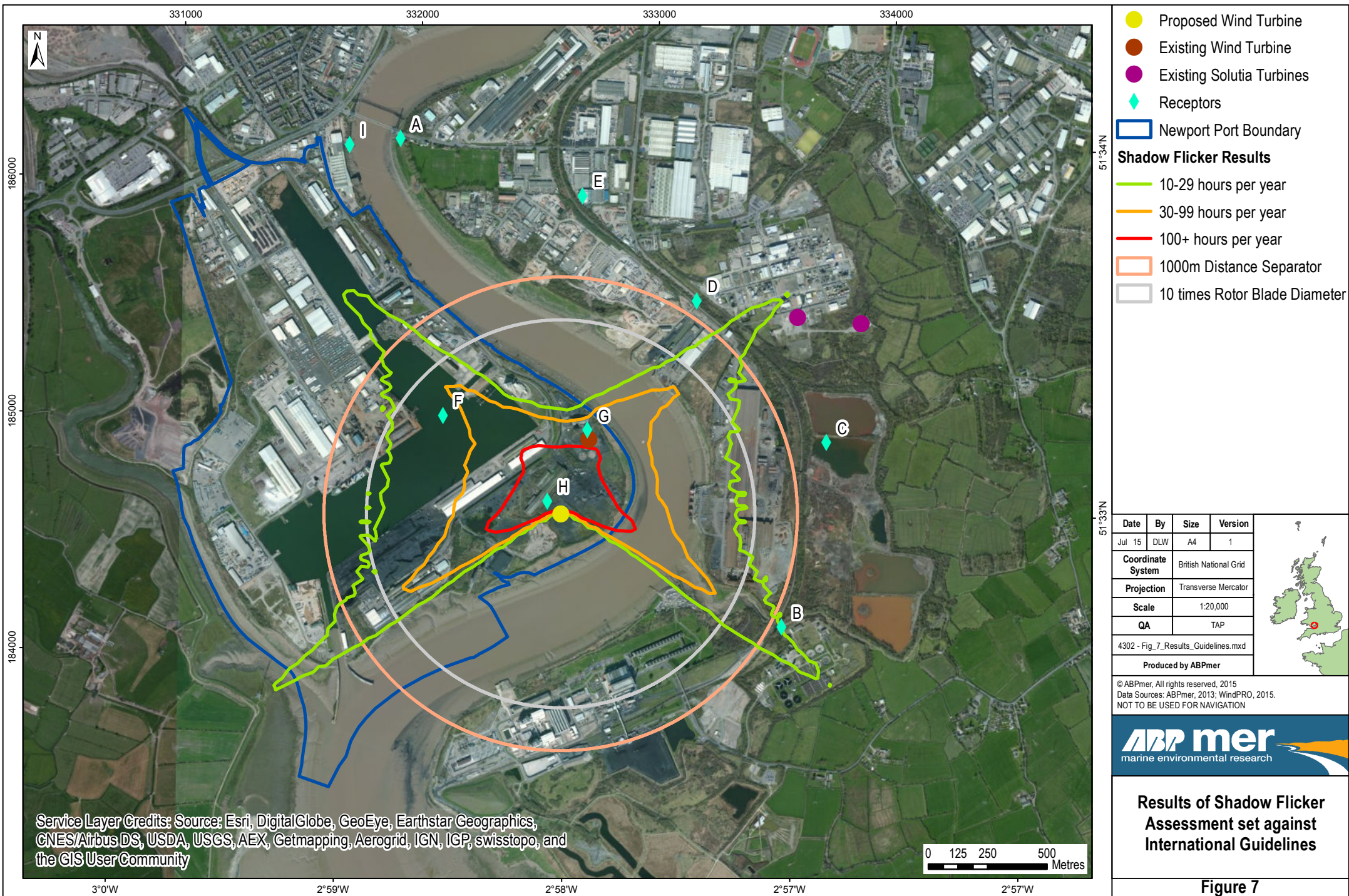


**Visualisation of
Proposed Wind Turbine**

Figure 4

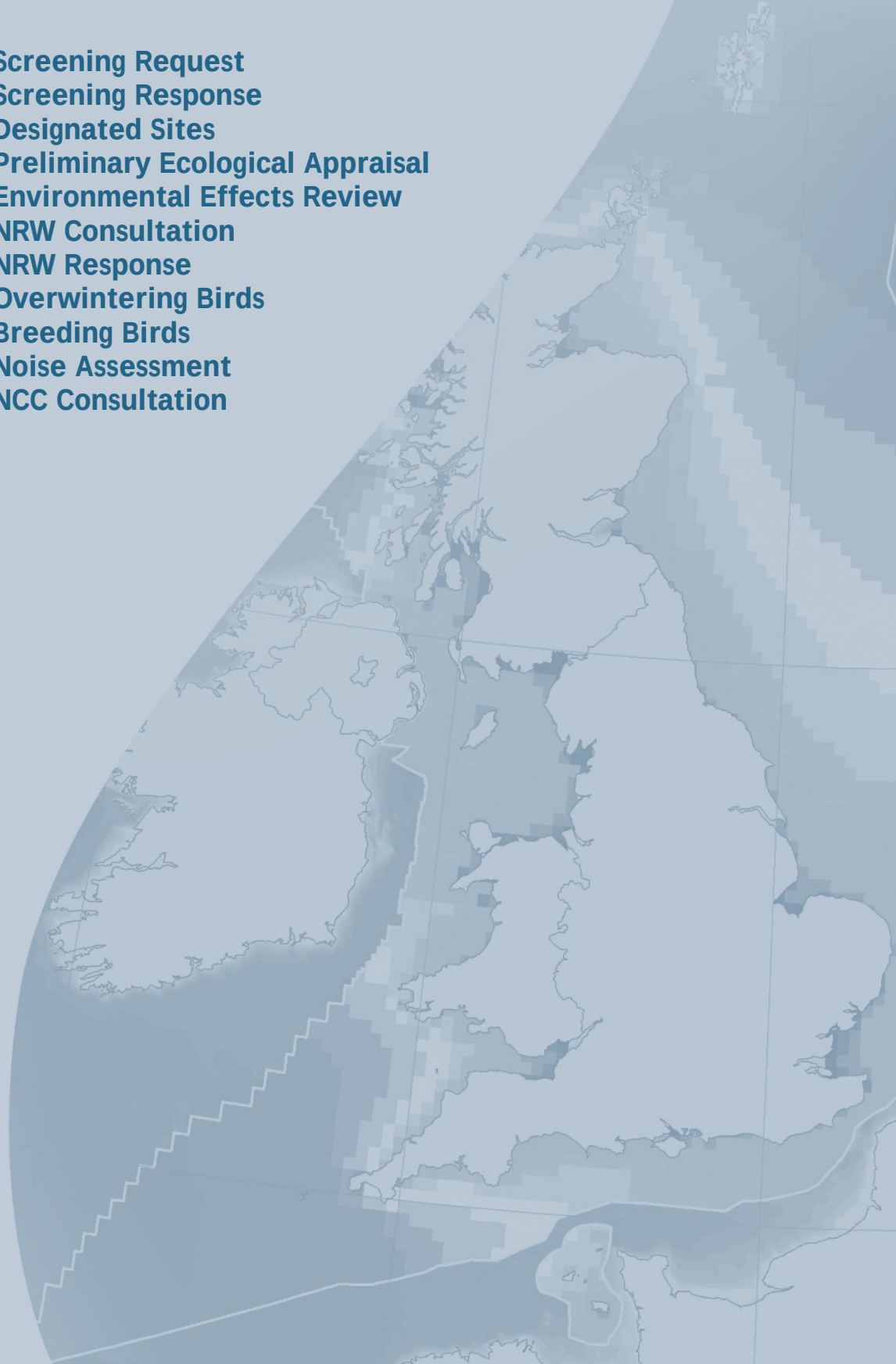






Appendices (See Separate Document)

- A. Screening Request
- B. Screening Response
- C. Designated Sites
- D. Preliminary Ecological Appraisal
- E. Environmental Effects Review
- F. NRW Consultation
- G. NRW Response
- H. Overwintering Birds
- I. Breeding Birds
- J. Noise Assessment
- K. NCC Consultation





ABP Marine Environmental Research Ltd (ABPmer)
Quayside Suite, Medina Chambers, Town Quay, Southampton SO14 2AQ

T +44 (0)23 80 711840

F +44 (0)23 80 711841

E enquiries@abpmer.co.uk

www.abpmer.co.uk

Creating sustainable solutions for the marine environment



Preliminary Ecological Appraisal

Newport Docks

For

Associated British Ports

Project No.: AABP105 / 002

April 2015

London & South East

Compass House
Surrey Research Park
Guildford
GU2 7AG . UK
t: +44 (0)1483 466 000

North & Borders

Calls Wharf
2 The Calls
Leeds
LS2 7JU . UK
t: +44 (0)113 247 3780

Wales & South West

Williams House
11-15 Columbus Walk
Cardiff
CF10 4BY . UK
t: +44 (0)2920 020 674

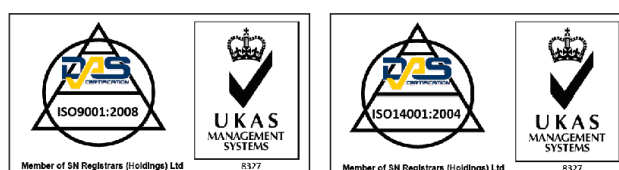
Scotland

20-23 Woodside Place
Glasgow
G3 7QF . UK
t: +44 (0)141 582 1333

Enquiries

e: enquiries@thomsonecology.com

w: www.thomsonecology.com



Project Number	Report No.
AABP105/002	002

Revision No.	Report Status	Date of Issue	Author	Reviewer	Approver
002	Final	28/04/2015	Zoë Costas-Michael	Jonathan Reeves	Natalie Drury

Disclaimer:

Copyright Thomson Ecology Limited. All rights reserved.

No part of this report may be copied or reproduced by any means without prior written permission from Thomson Ecology Limited. If you have received this report in error, please destroy all copies in your possession or control and notify Thomson Ecology Limited.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Thomson Ecology Limited, no other party may use, make use of or rely on the contents of the report. No liability is accepted by Thomson Ecology Limited for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Thomson Ecology Limited using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Thomson Ecology Limited has been made.

Contents

Contents	4
1. Summary and Main Recommendations	6
1.1 Summary	6
1.2 Main Recommendations	6
2. Introduction	8
2.1 Development Background	8
2.2 Ecology Background	8
2.3 The Brief and Objectives	8
2.4 Limitations	9
2.5 Surveyors	9
3. Methodology	10
3.1 Desk Study	10
3.2 Field Survey	10
4. Results	12
4.1 Background	12
4.2 Desk Study	12
4.3 Field Survey	24
5. Legislation and Planning Policy Issues	27
5.1 Background	27
5.2 Designated Sites	27
5.3 Priority Habitats	28
5.4 Ancient Woodland	28
5.5 Protected Species	29
5.6 Priority Species	29
5.7 Invasive Plant Species	29
5.8 Ecological Enhancement	30
6. Potential Further Ecological Issues	31
6.1 Background	31
6.2 Plants	31
6.3 Invertebrates	31
6.4 Amphibians	31
6.5 Reptiles	32
6.6 Birds	32
6.7 Mammals	32

7.	Recommendations.....	33
7.1	Mitigation.....	33
7.2	Ecological Enhancements.....	33
7.3	Further Surveys.....	34
8.	Conclusion.....	35
9.	References	36
10.	Appendix 1 Plant Species and Abundance	37
11.	Appendix 2 Assessment Methodology.....	40
11.1	Identification of Legal and Planning Policy Issues in Wales	40
11.2	Identification of Potential Further Ecological Issues	41

Figure 1 Site Location, Study Area and Desk Study Results

Figure 2 Extended Phase 1 Habitat Survey Map

Figure 3a-3b Photographs of the Site

1. Summary and Main Recommendations

1.1 Summary

- 1.1.1** Associated British Ports (ABP) proposes to install a single wind turbine generator closely located to an existing wind turbine, at Newport Docks, Gwent.
- 1.1.2** The brief was to undertake a preliminary ecological appraisal of the site and discuss the legal and planning policy issues associated with the proposed development and biodiversity. To that end, a desk study and extended Phase 1 habitat survey were undertaken to gather baseline ecological data for the site.
- 1.1.3** The main findings of the desk study were that the site is located within 21 metres of the River Usk Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The site is also 670 metres from the Severn Estuary SAC, SSSI, Special Area of Conservation (SAC), Ramsar site. There are a further three SSSIs, a National Nature Reserve (NNR), six locally important wildlife sites designated as Sites of Importance for Nature Conservation (SINC) and one Local Wildlife Site (LWS) within 2 kilometres of the site. The desk study returned records for twelve plants, three invertebrates, one amphibian and fifty four birds.
- 1.1.4** During the field survey, the site was found to support dense scrub, dense and scattered scrub mosaic, scattered scrub and swamp mosaic, ephemeral/short perennial and scattered scrub mosaic, ephemeral/short perennial, bare ground and buildings. A peacock butterfly, a blackbird, a crow, a species of warbler and lapwing were recorded on site.
- 1.1.5** The dense scrub and scattered scrub could provide suitable nesting sites for breeding birds. Rabbit burrow holes were recorded at the west and east of the site with droppings recorded widely across the site. The mitigation proposals set out below should ensure that the development is compliant with the law and planning policy with respect to rabbits. Further surveys for wintering birds have been undertaken with mitigation recommendations provided.
- 1.1.6** The River Usk SPA/SAC is in close proximity to the development and therefore under the Habitat Regulations a Screening Assessment (SA) may be required. Natural Resources Wales/Newport City Council should be consulted as to whether a SA is required under Habitat Regulations. The installation should not have a negative effect on the other protected sites due to the scale of the development, its proximity to the protected sites, measures put in place to control pollution and because the site habitats are not synonymous with the designatory features of the protected sites within 2 kilometres of the development.

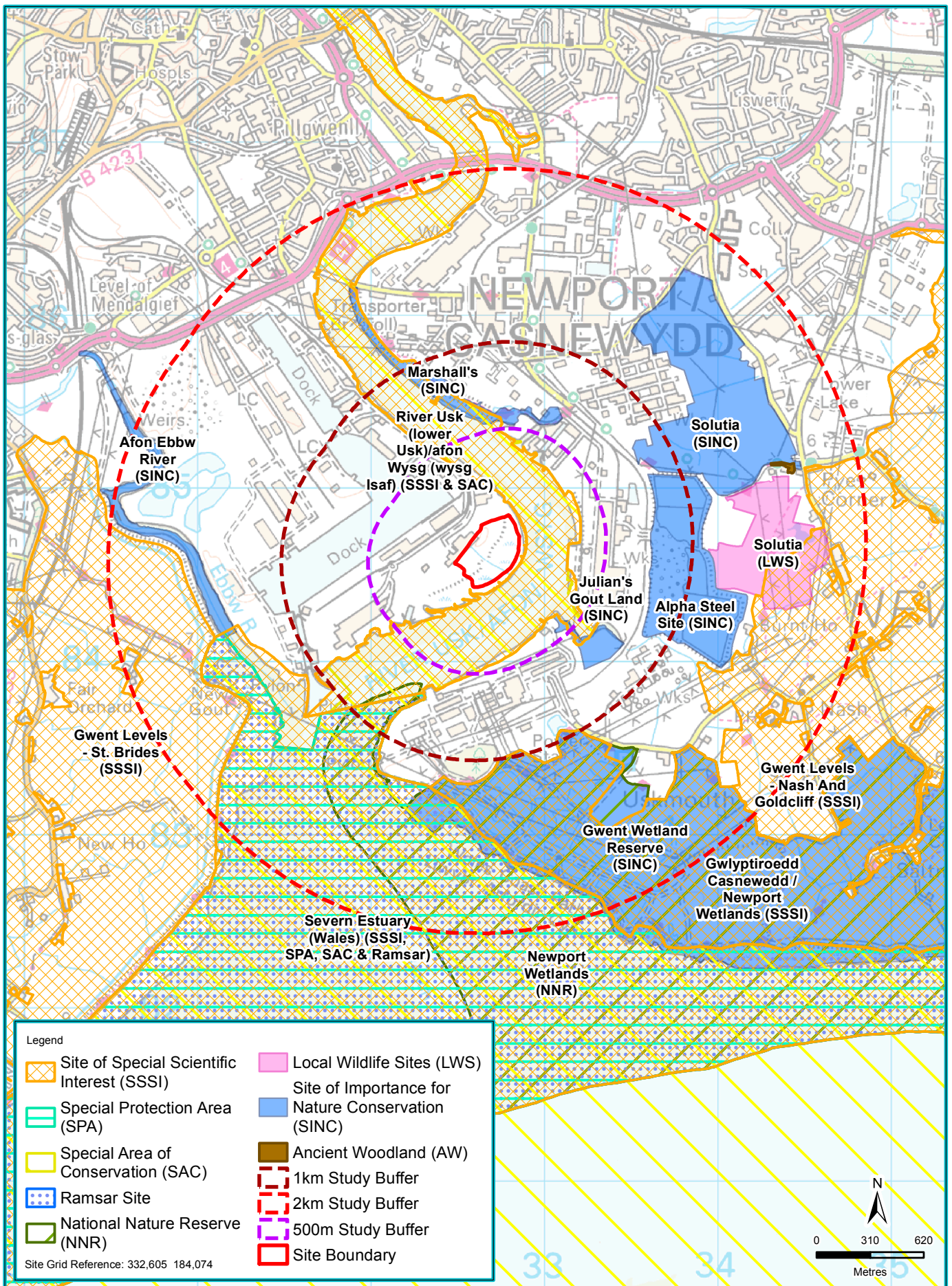
1.2 Main Recommendations

- 1.2.1** On the basis of this extended Phase 1 habitat survey, the following measures are recommended to comply with relevant biodiversity legislation and policy:
- Any animal holes that will be affected during construction should be assessed to determine if they are in use. If they are in use then they should be dug out under an ecological watching brief to ensure no animals are harmed; and

- Retention of dense and scattered scrub at the site boundary is recommended to retain suitable breeding habitat for birds.

Further Surveys

- 1.2.2** A further survey for breeding birds with the three target species; black redstart, greylag goose and lapwing is recommended because records were returned in the desk study, suitable habitat was found during the survey and they are legally protected. Mitigation measures may be required following the results of this survey.

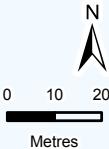
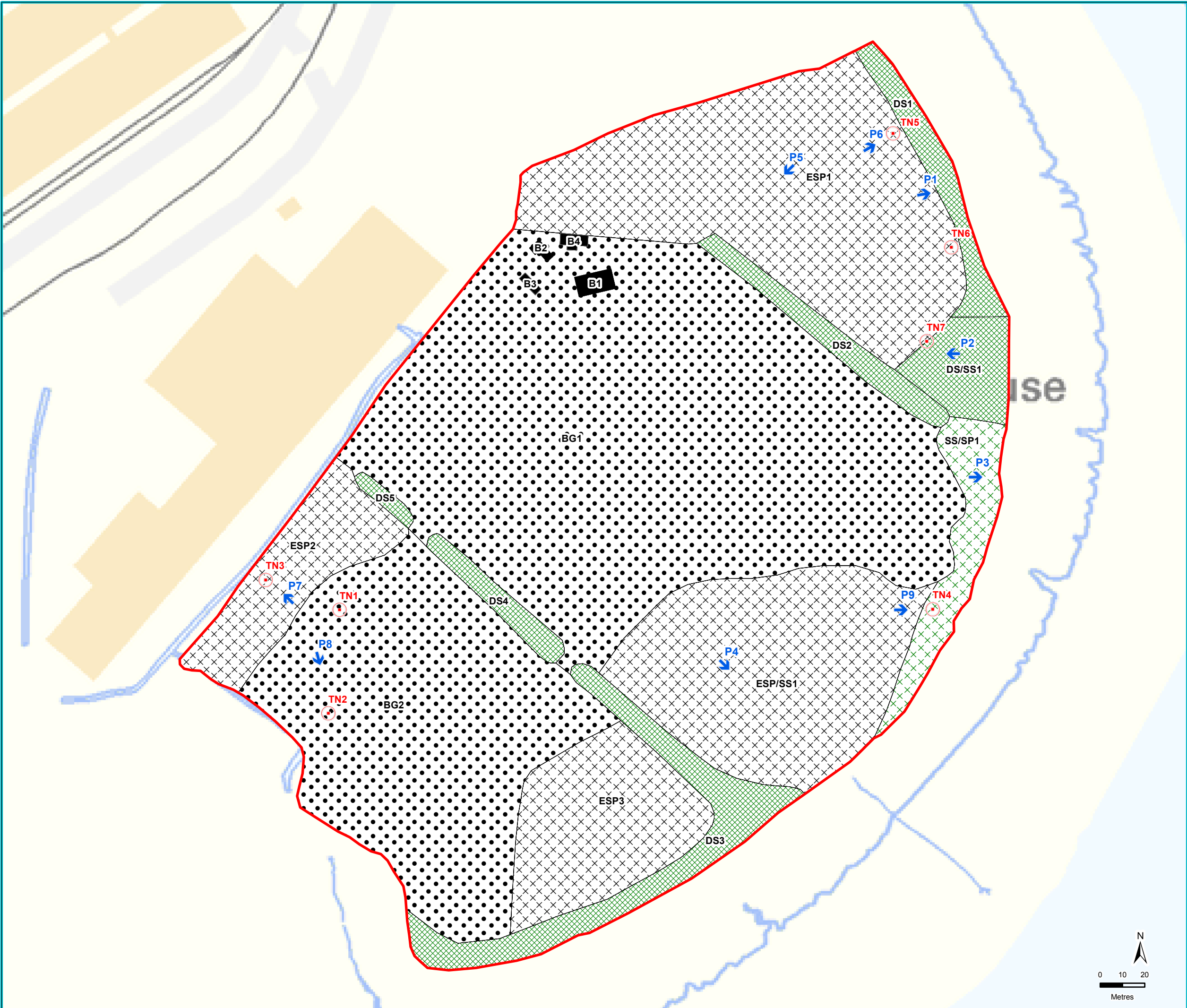


Client ABP Marine Environmental Research Limited		Drawing Ref AABP105/18337/1	
Figure Number 1		Scale at A4 1:30,000	
Figure Title Site Location, Study Area and Desk Study Results		Drawn AC	Checked NS
		Date 16/04/2015	Date 16/04/2015

thomson
ecology

www.thomsonecology.com
 enquiries@thomsonecology.com

Filepath: S:\Cardiff\Projects\AABP105 Newport Docks Turbine\Reports\Mapping\Phase 1 Survey\AABP105_Fig2_Phase1HabitatSurvey_KM_150415.mxd



Legend

- Photograph Location and Direction
- Target Note
- Dense Scrub
- Scattered Scrub
- Ephemeral Short Perennial
- Building
- Bare Ground
- Site Boundary

Site Grid Reference: 332,671 184,635

This map has been drawn at a sufficient level of accuracy to fulfil the requirements of a Phase 1 baseline habitat survey. The level of accuracy depends on both the size of the area involved and the base mapping. Every effort has been made to create a map that is as accurate as possible. However, this map is not intended to represent a scaled landscape survey so should not be used to pin-point accurate engineering work or as a basis for detailed site planning.

Contains Ordnance Survey data.
© Crown copyright and database rights 2015.
Licence Number 100030994.

This map must not be copied or reproduced by any means without prior written permission from Thomson Ecology Ltd.

Drawing Ref	
ABP105/18338/1	
Scale at A3	
1:1,604	
Drawn	Checked
AC	NS
Date	Date
16/04/2015	16/04/2015
Client	
ABP Marine Environmental Research Limited	
Figure Number	
2	
Figure Title	

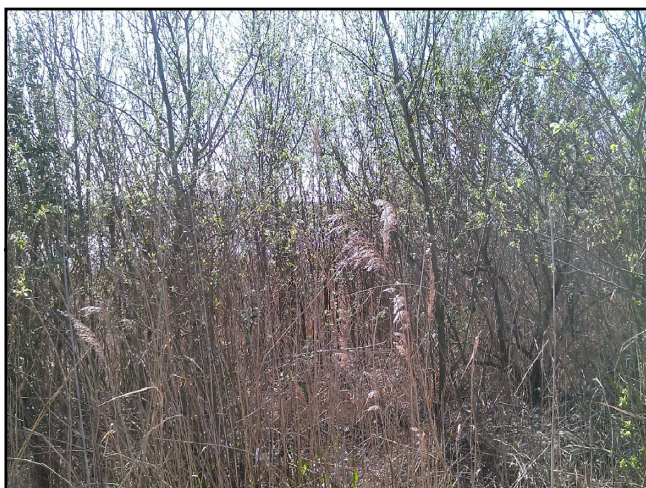
Extended Phase 1
Habitat Survey Map



Photograph 1:
Dense scrub (DS1) located at the north east of the site.



Photograph 2:
Dense/scattered scrub (DS/SS1) located at the north east of the site.



Photograph 3:
Scattered scrub/swamp (SS/SP1) located at the east of the site.



Photograph 4:
Ephemeral/short perennial/scattered scrub (ESP/SS1) located at the south east of the site.



Photograph 5:
Ephemeral/short perennial (ESP1) habitat located at the north of the site.



Photograph 6:
TN2 - Recent drainage works at the south west of the site.

Filepath: S:\Cardiff\Projects\AABP105 Newport Docks Turbine\Reports\Mapping\Working\Phase 1 Survey\AABP105_Fig3a_SitePhotographs_AC_160415.mxd
This figure must not be copied or reproduced by any means without prior written permission from Thomson Ecology Ltd.

Client ABP Marine Environmental Research Limited		Drawing Ref AABP105/18339/1		thomson ecology www.thomsonecology.com enquiries@thomsonecology.com
Figure Number 3a		Scale at A4 Not applicable		
Figure Title Photographs of the Site		Drawn AC	Checked NS	
		Date 16/04/2015	Date 16/04/2015	



Photograph 7:
TN3 – Rabbit burrow located to the west of the site.



Photograph 8:
TN4 – Well used rabbit burrow located at the east of the site.



Photograph 9:
Stand of Japanese Knotweed located at the north east of the site.

Client ABP Marine Environmental Research Limited		Drawing Ref AABP105/18340/1	
Figure Number 3b		Scale at A4 Not applicable	
Figure Title Photographs of the Site		Drawn AC	Checked NS
		Date 16/04/2015	Date 16/04/2015

2. Introduction

2.1 Development Background

- 2.1.1** Associated British Ports (ABP) proposes to install a single wind turbine generator, at Newport Docks, Gwent. The turbine generator will be 1.5 megawatt with a maximum height (blade sweep) of approximately 120 metres. The proposal described is hereafter referred to as 'the development'.
- 2.1.2** The development will be sited within a 9.4 hectares brownfield area located on East Way Road at Newport Docks (Grid Reference ST326846), shown on Figure 1. The area affected by the development is hereafter referred to as 'the site'. The exact positioning of the development has not yet been decided, but will be within the site.
- 2.1.3** ABP is currently assessing the feasibility of constructing a wind turbine close to the location of the existing turbines on the south-eastern side of the dock, outside the site boundary to the north.
- 2.1.4** ABP will submit a planning application for this development to Newport City Council in 2015.

2.2 Ecology Background

- 2.2.1** In order to inform the planning application for a previous wind turbine installation at Newport Docks adjacent to the site, Thomson Ecology carried out a wintering bird survey, based on the vantage point method, between October 2011 and March 2012 (Thomson Ecology report ref: NHAB178/002/003, issued April 2012). This report concluded that it is 'unlikely that the proposed wind turbine will have a significant effect on target or secondary species'.
- 2.2.2** Thomson Ecology carried out a wintering bird survey at the site, based on the vantage point method, between February 2015 and March 2015 (Thomson Ecology report ref: AABP105/001/001/001, issued March 2015). This report concluded that 'The proposed wind turbine should have no adverse effects on the species recorded during the survey'.

2.3 The Brief and Objectives

- 2.3.1** ABP commissioned Thomson Ecology on 25th March 2015 to undertake a preliminary ecological appraisal of the development site. The brief was to include:
- An extended Phase 1 habitat survey of land at Newport Docks (as indicated by the red line boundary agreed via email on 24th March 2015);
 - An ecological desk study including purchase of third party biological records;
 - A combined report including an introduction, methodology and results of the survey, a discussion of any relevant legal and planning policy issues, and our recommendations as to how these may be overcome; and
 - Appropriate digitised mapping

2.4 Limitations

- 2.4.1 The species data collated during the desk study is mainly derived from records submitted by members of the public and ad hoc surveys undertaken by volunteers. Therefore, it should not be taken as a definitive list of the protected species and other species of conservation concern that occur in the local area.
- 2.4.2 The survey was carried out in April, a suitable time of year for this type of survey.
- 2.4.3 This report is based on the site boundary and layout agreed by email on 24th March 2015. Subsequent changes to either may result in a requirement to reassess the potential impacts of the development and the requirements for avoidance, mitigation and enhancement.

2.5 Surveyors

- 2.5.1 The survey was undertaken by Sali Palmer BSc (Hons) MSc MCIEEM and Zoë Costas-Michael BSc (Hons) MSc.

3. Methodology

3.1 Desk Study

3.1.1 A study area was defined that encompasses the site and all land within 2 kilometres of the perimeter of the site, see Figure 1. South East Wales Biodiversity Records Centre (SEWBRc) was contacted for the purchase of biological data via email on 1st April 2015 with responses requested as soon as possible. SEWBRc was asked to provide up-to-date information on sites designated for their nature conservation value, local nature reserves, records of protected species and other species of conservation concern and any other information that they considered relevant. Records of designated sites were sought for the full study area, whereas records for species were sought for part of the study area encompassing the site and within 1 kilometre of the perimeter of the site.

3.1.2 This study area has been selected based on an assessment of the potential 'Zone of Influence' of the development, taking into account the size and type of the development and its potential impacts on features of biodiversity interest. The 'Zone of Influence' is defined as "the areas/resources that may be affected by the biophysical changes caused by activities associated with a project" (CIEEM 2006).

3.2 Field Survey

3.2.1 A survey area was defined that encompassed the site boundary. The survey area is shown on Figure 2.

3.2.2 A Phase 1 habitat survey (JNCC, 2010; IEA, 1995) was conducted throughout the survey area. Phase 1 habitat survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present. For this survey, the technique was modified (or extended) to provide more detail over a smaller area, and give further consideration to fauna.

3.2.3 The dominant and readily identified species of higher plant species from each habitat type within the survey area were recorded and their abundance was assessed on the DAFOR scale:

- D Dominant
- A Abundant
- F Frequent
- O Occasional
- R Rare

3.2.4 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2010).

- 3.2.5** Target notes were made for any features which were too small to map or are of particular ecological interest.
- 3.2.6** Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support protected species and other species of conservation concern, including priority species. However, no specific faunal surveys were undertaken.
- 3.2.7** The survey was conducted on 13th April 2015.

4. Results

4.1 Background

- 4.1.1 The contents of the results sections are the factual results of the desk study and extended Phase 1 habitat survey. Excluded from this section is the assessment of the site to support species of conservation concern not recorded during the survey. Instead, potential further ecological issues are discussed in Section 6.

4.2 Desk Study

- 4.2.1 A response was received from SEWBRcC on 10th April 2015. The results are summarised in Tables 1 and 2 with the locations of designated sites shown on Figure 1.

Designated Sites

- 4.2.2 Two internationally designated sites fall within 2 kilometres of the site, the River Usk SAC/SSSI and the Severn Estuary, Wales (Ramsar/SAC/SPA/SSSI). The River Usk SAC/SSSI is approximately 21 metres from the site and is designated for its linear ecosystem that acts as a wildlife corridor, an essential migration route and key breeding area for many internationally important species. Otter (*Lutra lutra*) is widespread along the length of the river where appropriate bankside cover exists and it also supports a wide range of breeding birds such as sand martin (*Riparia riparia*) and kingfisher (*Alcedo atthis*).
- 4.2.3 The Severn Estuary (Wales), 670 metres from the site, has three international designations and one national designation. The Severn Estuary (Wales) is a designated Ramsar Wetland of International Importance (known as a Ramsar site), Special Area of Conservation (SAC) and Special Protection Area (SPA), as well as a SSSI. The designations are given because the ecosystem supports internationally important migratory routes for fish and bird species, it is one of the most diverse estuarine communities in Europe, and it supports habitats listed on Annex 1 of the Habitats Directive.
- 4.2.4 A further four nationally designated sites fall within 2 kilometres of the site; Newport Wetlands SSSI, Newport Wetlands National Nature Reserve (NNR), St Brides SSSI and Nash and Goldcliff SSSI. Nash and Goldcliff SSSI and St Brides SSSI are two of a series of SSSIs within the surrounding area known as the Gwent Levels SSSI. The Gwent Levels SSSI is one of the most extensive areas of reclaimed wet pasture in Great Britain. It contains a network of drainage ditches known locally as 'reens', which support species-rich botanical and invertebrate communities. Newport Wetlands is also a National Nature Reserve.
- 4.2.5 There are also six non-statutory locally designated Sites of Importance for Nature Conservation (SINC) and a Local Wildlife Site (LWS) within 2 kilometres of the site (described in Table 1).

Table 1. Designated sites within 2 km of the site

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
International Sites (SPA, SAC and Ramsar)				
River Usk SAC, SSSI	ST339943	543.9	0.021	Essential migration route and a key breeding area for many nationally and internationally important species; including otter (<i>Lutra lutra</i>), several bat species, river lamprey (<i>Lampetra fluviatilis</i>) and a wide range of riverside breeding birds such as kingfisher (<i>Alcedo atthis</i>).
Severn Estuary (Wales) SPA, SAC, Ramsar, SSSI	ST 480830	15,950	0.67	Intertidal zone of mudflats, sand banks, rocky platforms and saltmarsh; provides a habitat for internationally important populations of waterfowl, invertebrate populations of interest and migratory fish including the nationally rare allis shad (<i>Alosa alosa</i>).
National Sites (SSSIs)				
Newport Wetlands NNR	ST351826	865.7	0.64	Created as mitigation for the loss of habitats in the area of the Taf/Ely Estuary SSSI when Cardiff Bay barrage was created. This reserve has extensive lowland wet grassland, reedbeds, saltmarshes and saline lagoons.
Newport Wetlands SSSI	ST 350830	374.2	0.95	Reclaimed wet pasture habitat supporting a significant number of wintering birds such as redshank (<i>Tringa totanus</i>) and shelduck (<i>Tadorna tadorna</i>).
Nash and Goldcliff SSSI	ST 350850	954	1.21	Reclaimed wet pasture habitat, rich in plant species such as least duckweed (<i>Wolffia arrhiza</i>) and communities such as two species of Hornwort (<i>Certophyllum submersum</i> and <i>Certophyllum demersum</i>).
St Brides SSSI	ST 290825	1,312	1.44	Reclaimed wet pasture habitat, rich in plant species and communities such as hairlike pondweed (<i>Potamogeton trichoides</i>) and arrowhead (<i>Sagittaria sagittifolia</i>).

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
County and Local Sites (SINCs, LNRs, etc)				
Julian's Gout Land SINC	ST 332841	4.6	0.38	Maritime influenced semi-improved neutral grassland with large populations of marsh helleborine (<i>Epipactis palustris</i>), marsh orchids (<i>Dactylorhiza</i> sp.) and narrow leaved bird's-foot-trefoil (<i>Lotus glaber</i>).
Marshall's SINC	ST 321857	10.3	0.52	Mosaic of neutral grassland and post industrial wetland.
Alpha Steel Site SINC	ST 338856	39.5	0.75	Scrub and other habitats supporting a range of species including scarce moth species and birds such as Cetti's warbler (<i>Cettia cetti</i>) and plants including the orchids <i>Epipactis palustris</i> , <i>Ophrys apifera</i> and <i>Anacamptis pyramidalis</i> .
Solutia Site SINC	ST 339856	63.5	0.79	A series of improved and semi-improved grasslands with ditches and ponds; supports a range of species including nesting birds such as Cetti's Warbler and invertebrates including hairy dragonfly (<i>Brachyton prantense</i>).
Gwent Wetland Reserve SINC	ST 348828	281.8	0.95	Mosaic of wet grassland reedbeds, open water, hedgerows and saline lagoon, which supports internationally important numbers of UK Biodiversity Action Plan Priority species such as water vole (<i>Arvicola amphibius</i>), great crested newt (<i>Triturus cristatus</i>) and brown hare (<i>Lepus europaeus</i>).
Solutia LWS	ST343846	31.3	1.09	A network of reens and ponds that supports a diversity of plants including lesser spearwort (<i>Ranunculus flammula</i>), rushes and sedges. It also provides good habitat for Cetti's warbler and sedge warbler (<i>Acrocephalus schoenobaenus</i>).

Site Designation	Grid Reference	Area (ha)	Distance to site (km)	Description
Afon Ebbw River SINC	ST 284860	11.88	1.32	Major river system with associated semi-improved neutral grassland and marshy grassland, swamp, scrub and semi-neutral woodland. Supports species such as bulbous foxtail (<i>Alopecurus bubous</i>), kingfisher, sand martin (<i>Riparia riparia</i>) and grass snake (<i>Natrix natrix</i>).

Ancient Woodland outside designated sites

- 4.2.6 One area of ancient semi-natural woodland was identified during the desk study. This habitat is 0.33 hectares and lies 1.51 kilometres to the east of the site.

Habitats of Principle Importance

- 4.2.7 The locally designated SINC (listed in Table 1) are likely to support the following types of priority habitat, as identified under Section 42 of the Natural Environment and Rural Communities (NERC) Act 2006:

- Rivers;
- Reedbeds;
- Lowland heathland; and
- Ponds.

Protected Species and Other Species of Conservation Concern

- 4.2.8 Records of protected species and species of conservation concern derived from the desk study are shown in Table 2. Only records from the last 10 years have been included. If multiple records for one species exist, then the nearest, most recent record has been given. Where a four figure grid reference was provided by the records centre and an accurate distance from the site can not be calculated, the distance has been omitted. Similarly, grid references have been omitted for any record listed as 'sensitive' by the records centre. Sensitive records are those where there could be a risk of persecution for that animal or if the record is in a private dwelling and permission hasn't been given for detailed location information.

Table 2. Records of Protected Species and Other Species of Conservation Concern derived from the desk study

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
Plants									
Wild cabbage	<i>Brassica oleracea</i>					RD2	LI (SEWBRcC)	ST3284	-
Common centaury	<i>Centaurea erythraea</i>					RD1		ST3284	-
Oak-leaved goosefoot	<i>Chenopodium glaucum</i>					RD1, RD2	WVP	ST3284	-
Dittander	<i>Lepidium latifolium</i>					RD2		ST3284	-
Narrow-leaved bird's-foot-trefoil	<i>Lotus tenuis</i>						LI (SEWBRcC) WVP	ST3284	-
Bladder Campion	<i>Silene vulgaris</i>						LI WVP	ST3284	-
Balm-leaved Figwort	<i>Scrophularia scorodoria</i>					RD2		ST32688447	63
Marsh-mallow	<i>Althaea officinalis</i>				✓	RD2	LI(SEWBRcC)	ST32738541	553
Long-stalked Orache	<i>Atriplex longipes</i>					RD2		ST326854	607
Bird's nest	<i>Monotropa hypopitys subsp. hypophgea</i>			✓		RD1, RD2		ST3384	-
Round-leaved Wintergreen	<i>Pyrola rotundifolia</i>					RD2	LI (SEWBRcC)	ST3384	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
Yellow Bird's Nest	<i>Monotropa hypopitys</i>			✓		RD1, RD2		ST3384	-
Invertebrates									
Brown-banded Carder Bee	<i>Bombus humilis</i>			✓				ST3384	-
Scarlet Tiger	<i>Callimorpha dominula</i>					RD2		ST325850	280
Six-belled Clearwing	<i>Bembecia ichneumonifor</i>					RD2		ST327853	486
Amphibians									
Common Toad	<i>Bufo bufo</i>		Sch 5*	✓				ST3384	-
Birds									
Whitethroat	<i>Sylvia communis</i>						WBA UKBA	ST38H	-
Goldeneye	<i>Bucephala clangula</i>		Sch 1				BDir22 UKBA	ST 3384	-
Redshank	<i>Tringa tetanus</i>						WBA UKBA BDir22	ST3384	-
Ruff	<i>Calidris pugnax</i>		Sch 1				BDir1 BDir22 WBA UKBR UKBA	ST 3384	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
Cetti's warbler	<i>Cettia cetti</i>		Sch 1					ST3384	-
Little ringed Plover	<i>Charadrius dubius</i>		Sch 1				UKBAm	ST3384	-
Bar-tailed Godwit	<i>Limosa lapponica</i>			✓			BDir1 BDir22 WBR UKBAm	ST3384	-
Black-tailed Godwit	<i>Black-tailed Godwit</i>		Sch 1			RD1	WBA UKBR	ST3384	-
Linnet	<i>Linaria cannabina</i>			✓			WBR UKBR	ST3384	-
Bullfinch	<i>Pyrrhula pyrrhula</i>			✓			WBR UKBR UKBAm	ST3384	-
Green Sandpiper	<i>Tringa ochropus</i>		Sch 1				UKBAm	ST3384	-
Lapwing	<i>Vanellus vanellus</i>			✓			BDir22 WBR UKBR UKBAm	ST3384	-
Kingfisher	<i>Alcedo atthis</i>		Sch 1				BDir1 WBA UKBAm	ST3283	-
Tree Pipit	<i>Anthus trivialis</i>			✓			WBA UKBR UKBAm	ST3283	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
Reed Bunting	<i>Emberiza schoeniclus</i>			✓			WBA UKBR UKBA	ST3283	-
Merlin	<i>Falco columbarius</i>		Sch 1				BDir1 WBA UKBA	ST3283	-
Eurasian Hobby	<i>Falco subbuteo</i>			✓			WBR UKBA	ST3283	-
Kestrel	<i>Falco tinnunculus</i>			✓			WBR UKBA	ST3283	-
Yellow Wagtail	<i>Motacilla flava</i>			✓			WBR UKBR UKBA	ST3283	-
Eurasian Curlew	<i>Numenius arquata</i>			✓		RD1	BDir22 WBR UKBA	ST3283	-
Whimbrel	<i>Numenius phaeopus</i>		Sch 1	✓		RD1	BDir22 WBR UKBA	ST3283	-
Bearded Tit	<i>Panurus biarmicus</i>		Sch 1				WBA UKBA	ST3283	-
Black Redstart	<i>Phoenicurus ochruros</i>		Sch 1				WBA UKBA	ST3283	-
Dunnock	<i>Prunella</i>			✓			WBR UKBR	ST3283	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
	<i>modularis</i>						UKBA		
Starling	<i>Sturnus vulgaris</i>			✓				ST3283	-
Song Thrush	<i>Turdus philomelos</i>			✓		RD2	BDir22 WBA UKBR	ST3283	-
Fieldfare	<i>Turdus pilaris</i>		Sch 1				Dir22 WBA UKBR UKBA	ST3283	-
Black-headed Gull	<i>Chroicocephalus ridibundus</i>			✓			BDir22 WBR UKBA	ST3184	-
Long-tailed Tit	<i>Aegithalos caudatus</i>						WBA	ST3384	-
Northern Shoveler	<i>Anas clypeata</i>						BDir21 WBA UKBA	ST3384	-
Eurasian Teal	<i>Anas crecca</i>						BDir21 WBA UKBA	ST3384	-
Mallard	<i>Anas platyrhynchos</i>						BDir21 WBA UKBA	ST3384	-
Gadwall	<i>Anas strepera</i>						BDir21	ST3384	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
							WBA UKBA		
Greylag Goose	<i>Anser anser</i>		Sch 1			RD2	BDir21 UKBA	ST3384	-
Pochard	<i>Aythya ferina</i>						BDir21 WBR UKBA	ST3384	-
Tufted Duck	<i>Aythya fuligula</i>						BDir21 WBA UKBA	ST3384	-
Red Knot	<i>Calidris canutus</i>						BDir22 WBA UKBA	ST3384	-
Mute Swan	<i>Cygnus olor</i>						BDir22 WBA UKBA	ST3384	-
Lesser black-backed Gull	<i>Larus fuscus</i>						BDir22 WBA UKBA	ST3384	-
Little Egret	<i>Egretta garzetta</i>					RD2	BDir1 UKBA	ST3384	-
Wheatear	<i>Oenanthe oenanthe</i>						WBA UKBA	ST3384	-
Snipe	<i>Gallinago gallinago</i>						BDir21 WBA	ST3283	-

Common Name	Scientific Name	HSR Sch 2 or 4	WCA Sch1, 5 or 8	National Priority Species	Local priority	Red Data Book	Other	Grid Ref.	Distance from site (m)
							UKBAm		
Oystercatcher	<i>Haematopus ostralegus</i>						BDir22 WBAm UKBAm	ST3283	-
Grey Wagtail	<i>Motacilla cinerea</i>					RD2	UKBAm	ST3283	-
Swallow	<i>Hirundo rustica</i>						WBAm UKBAm	ST3283	-
Cormorant	<i>Phalacrocorax carbo</i>						WBAm UKBAm	ST3283	-
Water Rail	<i>Rallus aquaticus</i>					RD2	BDir22 UKBAm	ST3283	-
Sand Martin	<i>Riparia riparia</i>						WBAm UKBAm	ST3283	-
Stonechat	<i>Saxicola rubicola</i>					RD2	UKBAm	ST3283	-
Shelduck	<i>Tadorna tadorna</i>						WBAm UKBAm	ST3283	-
Swift	<i>Apus apus</i>						WBAm UKBAm	ST330835	920
House Martin	<i>Delichon urbicum</i>						WBAm UKBAm	ST330835	920

*Denotes protection from sale only

HSR = Conservation of Habitats and Species Regulations 2010

WCA = Wildlife and Countryside Act 1981, as amended

Priority Species = Priority species for conservation under the Section 42 List (NERC Act 2006)

RD1 = UK Red Data Book listing based on IUCN guidelines

RD2 = UK Red Data Book listing not based on IUCN guidelines (Nationally Rare and Scarce)

BDir1 = EC Birds Directive Annex 1 Species

BDir21 = EC Birds Directive Annex 2.1 Species

BDir22 = EC Birds Directive Annex 2.2 Species

UKBR = UK Red listed birds

UKBA = UK Amber listed birds

WBR = Welsh Red listed birds

WBA = Welsh Amber listed birds

WVP = IUCN Threat Listing of Welsh Vascular Plants

LI(SEWBR) = Locally important species in SEWBR area

4.3 Field Survey

Habitats and Flora

4.3.1 The following Phase 1 habitat types were identified:

- Dense scrub;
- Dense scrub and scattered scrub mosaic;
- Scattered scrub and swamp mosaic;
- Ephemeral/short perennial and scattered scrub mosaic;
- Ephemeral/short perennial;
- Bare ground; and
- Buildings.

4.3.2 These habitats are described below and their distribution is given on Figure 2. A detailed species list for each habitat is given in Appendix 1. Photographs of site features are shown in Figures 3a and 3b.

Dense scrub

4.3.3 The parcels of dense scrub throughout this survey site are relatively similar. The first parcel (DS1 on Figure 2 and Photograph 1 on Figure 3a) has the same composition as two other parcels (DS4 and DS5 on Figure 2) in the south and south west of the site. These habitat parcels contain dense butterfly bush (*Buddleja davidii*), goat willow (*Salix caprea*) and bramble (*Rubus* sp.).

4.3.4 A large area at the south east of the site (DS3 on Figure 2) differs slightly to other dense scrub parcels comprised dense bramble with relatively frequent downy birch (*Betula pubescens*). Goat willow is also present at this parcel with colt's foot (*Tussilago farfara*) rarely present.

4.3.5 At the north east of the site, there is a linear strip of dense scrub (DS2 on Figure 2) which comprises dense bramble and goat willow with occasional colt's foot. It also contains rare marsh orchid (*Dactylorhiza* sp.).

Dense scrub and scattered scrub mosaic

4.3.6 At the north east of the site, the dense scrub begins to open up in areas and create a mosaic of dense scrub and scattered scrub habitat (DS/SS1 on Figure 2 and Photograph 2 on Figure 3a). In areas, the habitat comprises dense bramble with butterfly-bush scattering outwards from the dense row, and wild teasel (*Dipsacus fullonum*) is scattered from the survey boundary out into the habitat. The habitat also comprises frequent thistle (*Cirsium* sp.), occasional creeping cinquefoil (*Potentilla reptans*) and rare perforate St. John's wort (*Hypericum perforatum*).

Scattered scrub and swamp mosaic

- 4.3.7** A linear strip of scattered scrub/swamp (SS/SP1 on Figure 2 and Photograph 3 on Figure 3a) exists at the east of the site. The habitat comprises dense bramble, butterfly-bush, and common reed (*Phragmites australis*) with frequent wild teasel. The parcel also contains rare occurrences of pampas grass (*Cortaderia selloana*).

Ephemeral/short perennial and scattered scrub mosaic

- 4.3.8** At the south east of the site, there is a parcel of mosaic habitat comprising of ephemeral/short perennial and scattered scrub habitat (ESP/SS1 on Figure 2 and Photograph 4 on Figure 3a). The parcel is dominated by butterfly-bush with frequent downy birch and willowherb species (*Epilobium* sp.). Wild teasel and goat willow are scattered throughout the parcel with rare occurrences of dandelion (*Taraxacum officinale* agg.).

Ephemeral/short perennial

- 4.3.9** The parcel located at the north of the site (ESP1 on Figure 2 and Photograph 5 on Figure 3a) contains dominant butterfly-bush and bramble, abundant downy birch with frequent willowherb species, wild teasel, soft rush (*Juncus effusus*), common bird's foot trefoil (*Lotus corniculatus*) and occasional presence of stonecrop (*Sedum* sp.), field forget-me-not (*Myosotis arvensis*), selfheal (*Prunella vulgaris*), daisy (*Bellis perennis*), thistle species and dandelion. The parcel also contains a single stand of gorse (*Ulex europaeus*).
- 4.3.10** The parcel of ephemeral/short perennial to the south west of the site (ESP2 on Figure 2) is similar in composition to the other parcels of this habitat type located on site. However, this parcel consists of dominant butterfly-bush and abundant bramble with frequent chamomile (*Chamaemelum nobile*) and occasional lichen species, wild teasel, thistle, dandelion, bristly ox-tongue (*Helminthotheca echioides*), white clover (*Trifolium repens*), common mouse-ear (*Cerastium fontanum*), downy birch and goat willow. This parcel also contains rare occurrences of primrose (*Primula vulgaris*), soft rush and field forget-me-not.
- 4.3.11** The parcel to the south of the site (ESP3 on Figure 2) is less species rich than the other ephemeral/short perennial habitats identified, however, it does contain dominant butterfly-bush, rare occurrences of chamomile, colt's foot, field forget-me-not with frequent bramble.

Bare Ground

- 4.3.12** There are two large areas of bare ground in the survey area. The larger of the two parcels (BG1 on Figure 2) is a working coal tip with active plant on site. The smaller parcel of bare ground within the site (BG2 on Figure 2) was disused and contained a pile of damaged tyres (TN1 on Figure 2). The smaller parcel had also recently undergone drainage works and the land was cut up by ditches (TN2 Figure 2 on Photograph 6 on Figure 3b).

Buildings

- 4.3.13** The site contains a permanent metal barn structure (B1 on Figure 2) that is currently in use. The site contains three portable style office units currently in use for workers on site (B2, B3, B4 on Figure 2).

Fauna

- 4.3.14 A peacock butterfly (*Aglais oi*) was identified whilst surveying dense scrub parcel DS4.
- 4.3.15 Evidence of rabbits (*Oryctolagus cuniculus*), identified from droppings and burrow holes, were found in the bank dominated by brambles in the west of ESP2 (TN3 on Figure 2 and Photograph 7 on Figure 3b). Further evidence of rabbit burrows was found in scrub DS3 (TN4 on Figure 2 and Photograph 8 on Figure 3b).
- 4.3.16 A blackbird (*Turdus merula*) was identified whilst surveying habitat parcel ESP1.
- 4.3.17 A warbler species was identified whilst surveying dense scrub parcel DS4.
- 4.3.18 A carrion crow (*Corvus corone*) was identified whilst surveying habitat parcel ESP1.
- 4.3.19 Four lapwing (*Vanellus vanellus*) were identified whilst surveying parcel ESP1 and also observed flying over parcel ESP3.

Target Notes

- 4.3.20 Below are target notes from the 14th April 2015 field survey:
- Target Note 1 - Tyre pile;
 - Target Note 2 - Recent Drainage works;
 - Target Note 3 - Rabbit burrow;
 - Target Note 3 - Rabbit burrow;
 - Target Note 4 - Permanent metal barn;
 - Target Note 5 - Stand of treated Japanese knotweed (*Fallopia japonica*);
 - Target Note 6 - Stand of treated Japanese knotweed; and
 - Target Note 7 - Single cracked empty lapwing egg.

5. Legislation and Planning Policy Issues

5.1 Background

- 5.1.1** The content of the legislation and planning policy section is the legislation and planning policy issues that we know are relevant based on this desk study and extended Phase 1 habitat survey. The legislation and policy issues that might arise following further surveys are excluded. Potential further ecological issues are discussed in Section 6. A detailed description of the method for this section is given in Appendix 2

5.2 Designated Sites

- 5.2.1** The proposed development is 21 metres from the River Usk SAC, SSSI and 677 metres from the Severn Estuary SPA, SAC, Ramsar, SSSI.
- 5.2.2** Special Protection Areas (SPAs) are strictly protected sites classified in accordance with Article 4 of the EU Birds Directive (JNCC, 2009). Special Protection Areas (SPAs) are designated under the requirements of the new EU Birds Directive, 2009. The Conservation of Habitats and Species Regulations 2010, as amended, (the Habitats Regulations) transposes the requirements of the EU Birds and Habitats Directives into law in England and Wales. Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
- 5.2.3** SAC sites are included in the Natura 2000 network under Article 3(1) of the Habitats Directive. The Habitats Directive is implemented in the UK through the Conservation of Habitats and Species Regulations 2010 (the Habitats Regulations). The Habitats Regulations require that any proposed project or plan will not adversely affect the integrity of a Natura 2000 site which should be shown through appropriate assessment.
- 5.2.4** Given the proximity of the proposed development to the River Usk SAC, SSSI an appropriate assessment may be required to determine whether the development could affect the SAC and Newport City Council will be able to advise on this.
- 5.2.5** The development is unlikely to have a significant negative effect on the Severn Estuary SPA, SAC, Ramsar, SSSI for the following reasons:
- Works will be confined to the site boundary;
 - The habitats on site are not synonymous with those of the designated sites and therefore unlikely to be used by species that are features of interest to the protected sites;
 - Pollution will be controlled during construction works in accordance with Environment Agency pollution prevention guidelines (Environment Agency, 2007);
 - Any dust generating activities will be identified and appropriate measures will be implemented to prevent dust pollution incidents following guidelines set out by the pollution prevention guidelines (Environment Agency, 2007).
- 5.2.6** Newport Wetlands NNR approximately 636 metres from the site and is also nationally designated under the Wildlife and Countryside Act 1981, as amended. The site was created as mitigation for the loss of habitats in the area of the Taf/Ely Estuary SSSI when Cardiff Bay

barrage was created. Newport Wetlands SSSI is approximately 946 metres from the site; which is a nationally designated site under the Wildlife and Countryside Act 1981, as amended. The site is designated for the reclaimed wet pasture present that supports a significant number of wintering birds.

- 5.2.7 St Brides SSSI and Nash and Goldcliff SSSIs are approximately 1441 metres and 1211 metres from the site respectively; which are nationally designated site under the Wildlife and Countryside Act 1981, as amended.
- 5.2.8 All SSSIs are legally protected under the Wildlife and Countryside Act 1981, as amended, and are representative examples of British habitats. Section 28G of the Wildlife and Countryside Act 1981, as amended imposes a duty on local authorities to *"take reasonable steps, consistent with the proper exercise of the authorities functions, to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest"*.
- 5.2.9 The proposed development is unlikely to have a significant negative effect on the above SSSI/NNR designated sites and its important attributes due to the same reasons stated in 5.2.5.
- 5.2.10 There are seven non-statutory designated sites within 2 kilometres of the site, designated for supporting a range of priority habitats. The two closest; Julian's Gout Land SINC and Marshall's SINC, 380 metres and 520 metres from the site respectively, are designated for mosaic neutral grassland and their botanical populations. Mosaic neutral grasslands are not present on the site and therefore it is unlikely that the habitat on site will support the same species in significant numbers. For this reason and for the reasons stated above in 5.2.8 the development should not have a significant negative impact on any of the designatory features of these two SINCs.
- 5.2.11 For the reasons stated above in 5.2.5, the development should not have a direct or indirect effect on any of the other five non-statutory nature designated sites with 2 kilometres of the development site.

5.3 Priority Habitats

- 5.3.1 Planning Policy Wales (PPW) Technical Advice Note 5, Nature conservation and planning (TAN5) requires the *'protection and, where possible, enhancements of species and their habitats, especially those with legal protection and those of principal importance for biodiversity conservation in Wales'*.
- 5.3.2 No priority habitats were identified within the site boundary. As the impact of the development is restricted to the site boundary, there will be no loss of priority habitat on the site.

5.4 Ancient Woodland

- 5.4.1 No ancient woodland was found to be present on the site. The nearest parcel of ancient semi-natural woodland was found to be over 1.5 kilometres away from the site and is unlikely to be affected by the proposed development for the reasons described in Section 5.2.5.

5.5 Protected Species

- 5.5.1** A number of common bird species were recorded on the site, some of which are most likely to breed on the site as suitable habitat is present. All birds, eggs and nests are protected from damage and destruction under the Wildlife and Countryside Act 1981, as amended.
- 5.5.2** Used rabbit holes and droppings were identified in the bank of ephemeral/short perennial habitat (ESP2) and at the south east of the site (ESP3), see TN3 and TN4 on Figure 2. Rabbits receive some protection under the Wild Mammals (Protection) Act 1996. This makes it an offence to intentionally cause this species unnecessary suffering by certain methods including crushing and asphyxiation which could occur during site clearance.
- 5.5.3** Planning Policy Wales (PPW) states that '*the presence of a species protected under European or UK legislation is a material consideration when a local planning authority is considering a development proposal which, if carried out, would be likely to result in disturbance or harm to the species or its habitat,*'
- 5.5.4** The mitigation measures set out in Section 7 should ensure that the development proposals are compliant with the law and policy with respect to birds and rabbits. It should be noted however that other protected species may be present as set out in Section 6.

5.6 Priority Species

- 5.6.1** Four lapwing were recorded on the site flying over the ephemeral short perennial habitat (ESP1 and ESP3 on Figure 2); the adult lapwing demonstrated agitated behaviour and anxiety calls when crows came within close proximity, suggesting the presence of a nest or young nearby. Furthermore, a single, empty egg identified as that of a lapwing was found on site (TN7 on Figure 2). Lapwing is a species of principal importance for the conservation of biodiversity as listed under Section 42 of the NERC Act 2006 and is therefore a priority species in Wales. These priority species are listed in order to implement the duties under Section 40 of the NERC Act 2006 of decision makers, including local and regional authorities, to have regard to the conservation of biodiversity in all their activities. This species is also a red listed species of conservation concern (RSPB).
- 5.6.2** In line with these policies, the mitigation proposals set out in Section 7 should ensure that the conservation status of these priority species is maintained.

5.7 Invasive Plant Species

- 5.7.1** Two small stands of Japanese knotweed (*Fallopia japonica*) occur at the north east of the site (TN5 and TN6 on Figure 2, Photograph 9 on Figure 3b). Under the Wildlife and Countryside Act 1981, as amended, it is an offence to plant or otherwise cause this species to grow in the wild. The stands had already been treated prior to the field survey; however, it is not certain as to whether a treatment programme is underway. Japanese knotweed should be eradicated prior to the development; measures are proposed in Section 7 for the treatment of this species.

5.8 Ecological Enhancement

- 5.8.1 Central government policy now points towards ecological enhancement on development sites. PPW states that '*Authorities should seek to... where practicable, enhance features of conservation importance*'.
- 5.8.2 The Newport City Council Local Development Plan (LDP) advises that developments '*seek to avoid impacting upon the {site's} designation through design or incorporation of the feature to the site*'.
- 5.8.3 Recommendations for ecological enhancement that could be included within the development are outlined in Section 7.

6. Potential Further Ecological Issues

6.1 Background

- 6.1.1** The potential further ecological issues section sets out our assessment of the potential of the site to support protected species and other species of conservation concern which were not detected during the extended Phase 1 habitat survey, either because their presence is seasonal or because specialist survey techniques are required. Further survey work or appropriate mitigation is likely to be required before these issues can be addressed. Further information on the methods of assessment is given in Appendix 1.

6.2 Plants

- 6.2.1** The desk study returned twelve plant species, of which, four are listed the UK red data book based on IUCN guidelines and three are listed on the IUCN threat listing of Welsh vascular plants. Bird's nest, yellow bird's nest, common centaury and oak-leaved goosefoot are plant species listed in the UK red data book based on IUCN guidelines with oak-leaved goosefoot also on the IUCN threat listing of Welsh vascular plants. Narrow leaved bird's-foot trefoil and bladder campion are on the IUCN threat listing of Welsh vascular plants. These species were not recorded during the field survey and do not receive protection under UK law. The site does however contain potential habitat for common centaury, narrow bird's-foot trefoil and bladder campion but, as the species were not recorded during the survey, it is considered unlikely that the development will have a significant negative impact on these species.
- 6.2.2** A single marsh orchid was identified whilst undertaking the field survey and it is one of the designatory features of Julian's Gout Land SINC, located 380 metres away from the site. This SINC is separated from the site by the River Usk, therefore, this population should not be affected by the development. Measures to enhance the retained habitat on site for plants are given in Section 7.

6.3 Invertebrates

- 6.3.1** The desk study returned three invertebrates including the brown-banded carder bee listed in Section 42 of the NERC Act 2006, therefore making it a priority species in Wales. This species was not identified during the field survey and favours grassland; this site is suboptimal for this species and is unlikely to be adversely affected by the development.

6.4 Amphibians

- 6.4.1** No suitable water bodies were recorded on site and the terrestrial habitats on site were assessed as currently being of poor suitability to support great crested newt (*Triturus cristatus*) or other amphibian species. Therefore amphibians are unlikely to be affected by the development.

6.5 Reptiles

- 6.5.1 In its current state, the site offers poor suitability for reptile species and the desk study did not return any records of reptiles within 1 kilometre of the site. Therefore reptiles are unlikely to be affected by the development.

6.6 Birds

- 6.6.1 The desk study returned 53 bird species in total, with a total of twelve species listed on Schedule 1 of the Wildlife and Countryside Act 1981, as amended. All birds are protected under the Wildlife and Countryside Act 1981, as amended; therefore, it is illegal to kill, injure or take any wild bird, or damage or destroy the nest or eggs of breeding birds. Particularly vulnerable birds and their young are listed under Schedule 1 and are afforded enhanced protection when breeding whilst at or near the nest, in addition to the protection afforded to more common species. Of the twelve species listed on Schedule 1, most species are winter visitors or passage migrants with other species such as kingfishers and Cetti's warbler unlikely to occupy the site due to sub-optimal habitat. However, the black redstart is listed under Schedule 1 and could breed on site as suitable habitat for this species was recorded. Furthermore, there is suitable habitat on site for breeding greylag goose although the habitat present is not optimal for such species.
- 6.6.2 Fifteen species from the desk study are also species of principal importance for the conservation of biodiversity as listed under Section 42 of the NERC Act 2006 and are therefore priority species in Wales. All areas of dense scrub and ephemeral short perennial located in the survey may provide habitat for breeding birds and ground nesting birds including the lapwing recorded during the field survey. It is likely that the some species recorded within the desk study occur within the site boundary on occasion.
- 6.6.3 Measures and recommendations to protect these species whilst breeding are set out in Section 7.

6.7 Mammals

Bats

- 6.7.1 The desk study did not return any bat species within 1 kilometre of the site and suitable habitat for bats was not identified during the field survey. Furthermore, the site has poor connectivity to surrounding areas and the buildings present on site were not identified as possessing potential for bats. It is considered unlikely that the development will have an impact on bats.

Other Protected Mammals

- 6.7.2 The desk study did not return any mammals within 1 kilometre of the site although rabbits were identified as present with suitable habitat available on site. All other habitats on site were assessed as currently being of poor suitability to support mammals including European Protected Species. The mitigation measures set out in Section 7 should ensure that the development is compliant with the law with respect for rabbits.

7. Recommendations

7.1 Mitigation

- 7.1.1** The recommendations for mitigation (including avoidance, mitigation and compensation) measures given in this section are based on the findings of the desk study and extended Phase 1 habitat survey. It may include precautionary mitigation measures for some species which could occur on the site.

Designated Sites

- 7.1.2** The River Usk SAC/SSSI is located adjacent to the development and therefore under the Habitat Regulations a Screening Assessment (SA) may be required. The purpose of the SA is to identify and assess the potential effects of the development on the protected site. Where effects are unlikely no further action is required, however if potential impacts are identified an Appropriate Assessment may then be required. Natural Resources Wales and/or Newport County Council should be consulted as to whether a SA will be required.

Protected and Priority Species

- 7.1.3** Any animal holes, such as the rabbit burrows on site, that will be affected during construction should be assessed by soft-stopping the holes with grass to see if the entrances are in use. If it is possible to show that the burrow is not in use then the burrow can be destroyed without any risk of causing harm to any animals occupying the burrow. If the burrow is in use, it should be dug out with hand tools or a mini-digger under an ecological watching brief to ensure that no animals, such as rabbit, are harmed. Such work would not require a license.

Invasive Plant Species

- 7.1.4** Any stands of Japanese knotweed that are unlikely to be disturbed or affected by the development should be subject to a rigorous herbicide spraying programme, consisting of several treatments each year over a minimum period of three years.
- 7.1.5** Any stands of Japanese knotweed and their rhizomes that will be disturbed during construction should be excavated under supervision of a Clerk of Works to be treated in a designated location on site.
- 7.1.6** All appropriate measures should be taken to ensure that plant fragments can not be transported off site during site clearance and all contractors should receive toolbox talks on how to prevent spread and contamination of Japanese knotweed.

7.2 Ecological Enhancements

- 7.2.1** The site should incorporate enhancements for the benefit of wildlife in line with national planning policy. The following enhancement measures are given as examples, but are not legal requirement:

- Retention of natural vegetation around the edge of the site including dense scrub on the site boundary and scattered scrub to the south east of the site to retain suitable breeding areas for birds; and
- Retention of the scattered scrub / swamp habitat to retain biodiversity within the site boundary.

7.3 Further Surveys

7.3.1 Further survey is recommended for breeding birds within the site boundary for Schedule 1 species and also for species listed under Section 42 of the NERC ACT 2006. Records of black redstart and greylag goose were returned in the desk study and these species are listed under Schedule 1; they may breed on site as suitable habitat is present. Furthermore, lapwing were recorded displaying agitated behaviour during the survey and an empty lapwing egg was found. As Section 42 species, lapwing are a species of principal importance for the conservation of biodiversity. Black redstart, greylag goose and lapwing can be found all year-round, therefore; further surveys should be completed regardless of the timing of the development. Breeding bird surveys based on the common bird census with the above mentioned species as targets are recommended to take place between April and June to determine breeding sites, with five visits recommended during this period.

8. Conclusion

- 8.1.1** The development is unlikely to have an adverse affect on 12 of the 13 protected sites identified in the desk study due to the scale of the project; their proximity to the development and because the habitats on site are not associated with the designatory features of these sites within 2 kilometre. However, the River Usk SAC/SSSI is adjacent to the site and Natural Resources Wales/Newport City Council should be consulted as to whether a Screening Assessment is required under the Habitat Regulations.
- 8.1.2** The site contains suitable habitat for breeding birds including lapwing, black redstart and greylag goose. Lapwing are a priority species and were recorded during the field survey. Black redstart and greylag goose are Schedule 1 species which were recorded in the desk study. In order for the development to comply with legislation relating to breeding birds, further surveys are recommended to determine whether these species are breeding on the site.
- 8.1.3** The mitigation measures recommended for rabbits and Japanese knotweed in Section 7 should ensure that the development proposals are compliant with the relevant legislation with respect to these species.

9. References

- 9.1.1 CIEEM Chartered Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment in the United Kingdom. Chartered Institute of Ecology and Environmental Management, Winchester.
- 9.1.2 CIEEM Chartered Institute of Ecology and Environmental Management (2013) Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management, Winchester.
- 9.1.3 Environment Agency (2007) Works and maintenance in or near water: PPG5 Pollution Prevention Guidelines.
- 9.1.4 HM Government (2010) The Conservation of Habitats and Species Regulations.
- 9.1.5 HM Government (1981) Wildlife and Countryside Act 1981. HM Government.
- 9.1.6 Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment. E & FN Spon, London.
- 9.1.7 JNCC (2010) Handbook for Phase 1 habitat survey: A technique for environmental audit. Joint Nature Conservancy Committee, Peterborough.
- 9.1.8 Newport City Council (2013) *Newport Local Development Plan 2011-26, Deposit Plan*. Newport City Council, Newport.
- 9.1.9 Stace C (2010) *New Flora of the British Isles* (third edition). Cambridge University Press, Cambridge.
- 9.1.10 Thomson Ecology (2012) Wintering Bird Survey - Newport Docks for Associated British Ports. (Ref: NHAB178/002/003)
- 9.1.11 Thomson Ecology (2015) Wintering Bird Survey - Newport Docks for Associated British Ports. (Ref: AABP105/ 001/001/001)

10. Appendix 1 Plant Species and Abundance

Dense Scrub DS1

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	D
Butterfly-bush	<i>Buddleja davidii</i>	D
Goat Willow	<i>Salix caprea</i>	F

Dense Scrub DS2

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	D
Goat Willow	<i>Salix caprea</i>	D
Colt's Foot	<i>Tussilago farfara</i>	O
A Marsh Orchid	<i>Dactylorhiza</i> sp.	R

Dense Scrub DS3

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	A
Goat Willow	<i>Salix caprea</i>	F
Downy Birch	<i>Betula pubescens</i>	F
Colt's Foot	<i>Tussilago farfara</i>	R

Dense Scrub DS4

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
Goat Willow	<i>Salix caprea</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	F

Dense Scrub DS5

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
Goat Willow	<i>Salix caprea</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	F

Dense Scrub/ Scattered Scrub DS/SS1

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	D
Butterfly-bush	<i>Buddleja davidii</i>	D
Wild Teasel	<i>Dipsacus fullonum</i>	D
A Thistle	<i>Cirsium</i> sp.	F
Creeping Cinquefoil	<i>Potentilla reptans</i>	O
Perforate St.John's Wort	<i>Hypericum perforatum</i>	R

Scattered Scrub/ Swamp SS/SP1

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	D
Butterfly-bush	<i>Buddleja davidii</i>	D
Common Reed	<i>Phragmites australis</i>	D
Wild Teasel	<i>Dipsacus fullonum</i>	F
Pampas Grass	<i>Cortaderia selloana</i>	R

Ephemeral/ Short Perennial/Scattered Scrub ESP/SS1

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
Downy Birch	<i>Betula pubescens</i>	F
A Willowherb	<i>Epilobium</i> sp.	F
Wild Teasel	<i>Dipsacus fullonum</i>	O
Goat Willow	<i>Salix caprea</i>	O
Dandelion sp.	<i>Taraxacum</i> sp.	R

Ephemeral/ Short Perennial ESP1

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	D
Downy Birch	<i>Betula pubescens</i>	A
A Willowherb	<i>Epilobium</i> sp.	F
Wild Teasel	<i>Dipsacus fullonum</i>	F
Soft Rush	<i>Juncus effuses</i>	F
Common Bird's Foot Trefoil	<i>Lotus corniculatus</i>	F
Stonecrop	<i>Sedum</i> sp.	O
Field Forget-me-not	<i>Myosotis arvensis</i>	O

Selfheal	<i>Prunella vulgaris</i>	O
Daisy	<i>Bellis perennis</i>	O
A Thistle	<i>Cirsium</i> sp.	O
Dandelion sp.	<i>Taraxacum</i> sp.	O
Gorse	<i>Ulex europaeus</i>	R

Ephemeral/ Short Perennial ESP2

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	A
Chamomile	<i>Chamaemelum nobile</i>	F
A Lichen	Lichen sp.	O
Wild Teasel	<i>Dipsacus fullonum</i>	O
A Thistle	<i>Cirsium</i> sp.	O
Dandelion sp.	<i>Taraxacum</i> sp.	O
Bristly oxtongue	<i>Helminthotheca echioides</i>	O
White Clover	<i>Trifolium repens</i>	O
Common Mouse-ear	<i>Cerastium fontanum</i>	O
Downy Birch	<i>Betula pubescens</i>	O
Goat Willow	<i>Salix caprea</i>	O
Primrose	<i>Primula vulgaris</i>	R
Soft Rush	<i>Juncus effuses</i>	R
Field Forget-me-not	<i>Myosotis arvensis</i>	R

Ephemeral/ Short Perennial ESP3

Common Name	Scientific Name	Abundance
Butterfly-bush	<i>Buddleja davidii</i>	D
A Willowherb	<i>Epilobium</i> sp.	D
Bramble	<i>Rubus fruticosus</i> agg.	F
Chamomile	<i>Chamaemelum nobile</i>	R
Colt's Foot	<i>Tussilago farfara</i>	R
Field Forget-me-not	<i>Myosotis arvensis</i>	R

11. Appendix 2 Assessment Methodology

11.1 Identification of Legal and Planning Policy Issues in Wales

Scope of Assessment

- 11.1.1 The first step is to identify any biodiversity features found on the site that are subject to legal or policy controls, as follows:

Designated Sites

- 11.1.2 The location of the site is compared to the distribution of sites with a statutory or non-statutory nature conservation designation using information derived from the desk study. Consideration is given to designated sites that could be affected directly or indirectly by the proposed development.

Habitats outside Designated Sites

- 11.1.3 The habitats known to occur on the site are compared to those which receive some protection, in law or policy, outside of designated sites i.e. hedgerows, uncultivated land and semi-natural areas, habitats listed as priorities in the home nation biodiversity strategies, habitats listed as Habitats of Principal Importance for the Conservation of Biodiversity by the Secretary of State and local priority habitats listed as requiring action (formerly under the Local Biodiversity Action Plans).

Ancient Woodland

- 11.1.4 The ancient woodland inventory is checked to determine whether any known ancient woodland occurs either on the site or nearby.

Protected Species

- 11.1.5 The species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981, as amended, the Conservation (Habitats &c) Regulations 2010.
- 11.1.6 In addition, the species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

Priority Species

- 11.1.7 The species known to occur on the site are compared with those listed as priority species (i.e. Species of Principal Importance for the Conservation of Biodiversity in the country concerned) or those requiring action on the local priority species lists (Local Biodiversity Action Plans).

Other Species of Conservation Concern

- 11.1.8** The species known to occur on the site are compared with other nature conservation listings, such as red data books.

Invasive Plant Species

- 11.1.9** The species of plant present on the site are compared with those listed by government agencies as invasive non-natives, with particular attention given to those listed in the Wildlife and Countryside Act 1981, as amended.

Review of Legislation and Policy

- 11.1.10** If any of the above are found to occur on or near the site and are likely to be affected by the development in any way, the relevant legislation and planning policy (including national, regional, county and borough policies) are examined to determine whether the proposed development is compliant.

Ecological Enhancement

- 11.1.11** Planning policy generally requires new developments to be enhanced for biodiversity. The existing proposals are considered to determine whether biodiversity enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional, county and borough policies are considered.

11.2 Identification of Potential Further Ecological Issues

- 11.2.1** Further ecological issues are those which can not be resolved during the preliminary ecological appraisal for any reason, including the following:
- The development is near a designated site and consultation with the relevant regulator is required in order to determine whether further assessment is required;
 - Suitable habitat is present on or near the site for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
 - Suitable habitat is present on or near the site for a protected species/species of conservation concern and the extended Phase 1 habitat survey was not undertaken at a suitable time of year for their detection;
 - A protected species/species of conservation concern was found on or near the site but further information on population size or distribution is required in order to resolve any legal and planning policy issues (such as obtaining licences).
- 11.2.2** Discussion of issues raised by 3rd parties, e.g. reports of protected species from the site by local people, may also be discussed under this heading.
- 11.2.3** The desk study is used as a guide to the protected species/species of conservation in the local area, however, the list is not taken to be exhaustive and it is borne in mind that some species may no longer occur in the locality.

- 11.2.4** No attempt is made to evaluate the importance of the site for species not yet confirmed to be on or near the site, nor to discuss the implications for the development if the species were to be found on the site.



Bat Transect Survey

Newport Docks

For

Associated British Ports

Project No.: AABP105 / 004

September 2015

London & South East
Compass House
Surrey Research Park
Guildford
GU2 7AG . UK
t: +44 (0)1483 466 000

North & Borders
Calls Wharf
2 The Calls
Leeds
LS2 7JU . UK
t: +44 (0)113 247 3780

Wales & South West
Williams House
11-15 Columbus Walk
Cardiff
CF10 4BY . UK
t: +44 (0)2920 020 674

Scotland
20-23 Woodside Place
Glasgow
G3 7QF . UK
t: +44 (0)141 582 1333

Enquiries

e: enquiries@thomsonecology.com

w: www.thomsonecology.com



Project Number	Report No.
AABP105 / 004	001

Revision No.	Report Status	Date of Issue	Author	Reviewer	Approver
001	Final	17/09/15	Janine Burnham	Marion Thomson	Natalie Drury

Disclaimer:

Copyright Thomson Ecology Limited. All rights reserved.

No part of this report may be copied or reproduced by any means without prior written permission from Thomson Ecology Limited. If you have received this report in error, please destroy all copies in your possession or control and notify Thomson Ecology Limited.

This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by Thomson Ecology Limited, no other party may use, make use of or rely on the contents of the report. No liability is accepted by Thomson Ecology Limited for any use of this report, other than for the purposes for which it was originally prepared and provided.

Opinions and information provided in the report are on the basis of Thomson Ecology Limited using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It should be noted and it is expressly stated that no independent verification of any of the documents or information supplied to Thomson Ecology Limited has been made.

Contents

1. Summary and Main Recommendations	5
1.1 Summary	5
1.2 Main Recommendations	5
2. Introduction	6
2.1 Development Background	6
2.2 Ecology Background	6
2.3 The Brief and Objectives	6
2.4 Limitations	7
2.5 Surveyors	7
3. Methodology	8
4. Results	10
5. Legal and Planning Policy Issues	11
6. Recommendations	13
6.1 Mitigation	13
6.2 Opportunities for Enhancement	13
7. Conclusion	14
8. References	15
Appendix 1 - Bats	16
Appendix 2 - Bat Activity Survey Results	21

FIGURE 1 SITE LOCATION

FIGURE 2 BAT SURVEY TRANSECT RESULTS

1. Summary and Main Recommendations

1.1 Summary

- 1.1.1** Associated British Ports (ABP) propose to install a single wind turbine generator within a brownfield site on East Way Road at Newport Docks, Gwent. The proposed site is located to close by to existing wind turbines.
- 1.1.2** To support the planning application for the installation, Thomson Ecology was commissioned to undertake bat activity surveys at the site. The brief was to undertake three sets of dusk/dawn survey visits in the optimal season for bats and discuss the legal and planning policy issues associated with the proposed development and bats. The survey methods employed complied with good practice guidance (BCT, 2012). The objective of the surveys was to determine the level of bat activity on the site.
- 1.1.3** Bats and their habitats are protected by European and UK legislation. In addition, policies SP1, SP9 and GP5 of the Newport Local Development Plan (LDP) offer protection to bats against detrimental impacts associated with development.
- 1.1.4** The surveys recorded very low or low levels of bat activity on the site with one species, common pipistrelle (*Pipistrellus pipistrellus*), recorded.
- 1.1.5** The proposed development will not lead to the loss of any habitat of high value for foraging bats, however, without mitigation it could lead to increased risk of killing and, or injury, of individual bats through direct contact with the turbine. If the recommended mitigation measures are implemented, it is considered highly unlikely that the proposed turbine installation will have a detrimental effect upon bats and should therefore be compliant with the relevant legislation and planning policies with respect to bats.

1.2 Main Recommendations

- 1.2.1** The main recommendations are set out below:
- The turbine should be sited such that the sweep area is at least 50m away from the areas of habitat that have foraging potential for bats.
 - The land in a 50m radius around the turbine should be managed to minimise foraging opportunities for bats. Any hard surfacing should be retained, or replaced after the development, to prevent vegetation establishing.
 - Environmental enhancement for bats could be achieved by planting native, nectar-rich plant species as part of the landscaping across the Newport Docks site as a whole.

Filepath: S:\Cardiff\Projects\AABP105 Newport Docks Turbine\Reports\Mapping\Working\Bat Transect Survey\AABP105_Figure1_SiteLocation_TD_140915.mxd
 Contains Ordnance Survey data © Crown copyright and database rights 2014. Licence Number 100030994. This map must not be copied or reproduced by any means without prior written permission from Thomson Ecology Ltd.

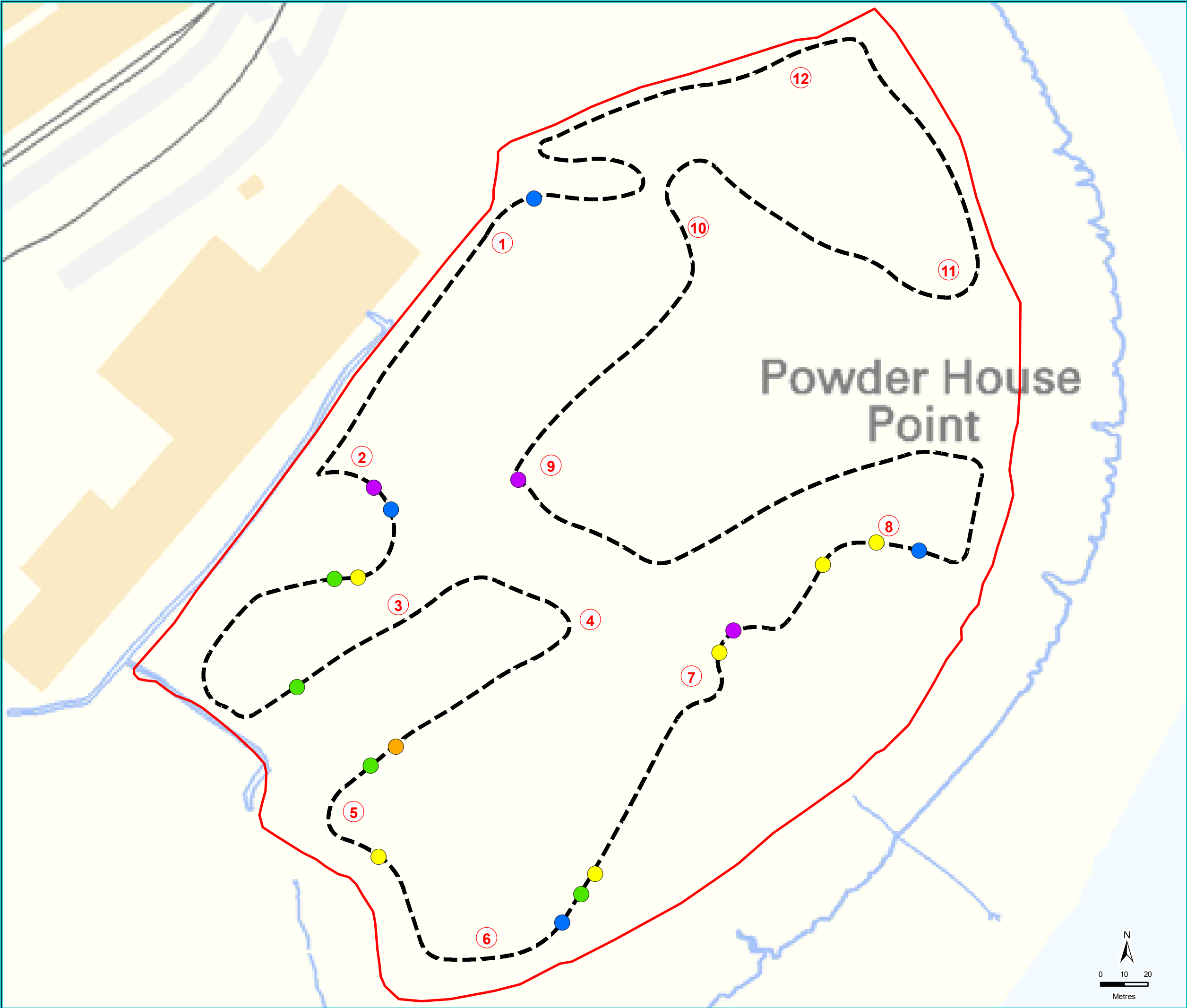


Client Associated British Ports		Drawing Ref AABP105/19416/1	
Figure Number 1		Scale at A4 1:50,000	
Figure Title Site Location		Drawn TD	Checked NS
		Date 14/09/2015	Date 14/09/2015

thomson
ecology

www.thomsonecology.com
 enquiries@thomsonecology.com

Filepath: S:\Cardiff\Projects\AABP105 Newport Docks Turbine\Reports\Mapping\Working\Bat Transect Survey\AABP105_Figure2_BatTransectResults_TD_140915.mxd



Legend

Location of Bat Recording

- Visit 1 Dusk
- Visit 1 Dawn
- Visit 2 Dusk
- Visit 2 Dawn
- Visit 3 Dusk
- Bat Transect Stopping Point
- Bat Transect Route
- Survey Boundary

Site Grid Reference: 332,679 184,635

Contains Ordnance Survey data.
© Crown copyright and database rights 2015.
Licence Number 100030994.

This map must not be copied or reproduced by any means
without prior written permission from Thomson Ecology Ltd.

Drawing Ref
AABP105/19417/1

Scale at A3
1:1,500

Drawn	TD	Checked	NS
Date	14/09/2015	Date	14/09/2015

Client
Associated British Ports

Figure Number
2

Figure Title
Bat Transect Survey Results

2. Introduction

2.1 Development Background

- 2.1.1** Associated British Ports (ABP) proposes to install a single wind turbine generator at Newport Docks, Gwent. The proposal is hereafter referred to as 'the development'.
- 2.1.2** The development is proposed within a 9.4 hectare brownfield site located on East Way Road at Newport Docks (Grid Reference ST326846). The area affected by the development is hereafter referred to as 'the site' (see Figure 1). At the time of the surveys the precise position of the development within the site had not been finalised.
- 2.1.3** The feasibility of constructing the proposed wind turbine close to the location of existing turbines on the south-eastern side of the dock, to the north of the site boundary is currently being assessed by ABP.
- 2.1.4** ABP intend to submit a planning application for the development to Newport City Council in 2015.

2.2 Ecology Background

- 2.2.1** In 2011 Thomson Ecology carried out bat surveys prior to the installation of the existing turbine to the north of the site at the request of Newport City Council (Thomson Ecology report reference: NHAB178/001/001, issued November 2011). These surveys recorded low or very low levels of common pipistrelle bat activity in the area.
- 2.2.2** An extended Phase 1 habitat survey of the site was undertaken by Thomson Ecology on 13th April 2015 (Thomson Ecology report reference: AABP105/002/002/001, issued April 2015). The site was assessed as having low suitability for bats with no buildings or trees that offer potential roosting places. The habitats identified on the site were assessed as providing low quality foraging potential for bats and no records of bats within 1 km were returned in the data search. However, the site is located on the banks of the River Usk estuary, and Natural England Technical Information Note 059 (TIN059, 2012, which is ratified by NRW) states that "*A bat survey should normally be recommended for applications for turbines that will be located within 50m of ... rivers*". The client therefore commissioned Thomson Ecology to carry out bat transect surveys on the site.

2.3 The Brief and Objectives

- 2.3.1** ABP commissioned Thomson Ecology on 8th July 2015 to undertake bat surveys of the development site. The brief was to include:
- Three dawn and dusk transect surveys of the proposed wind turbine site at Newport Docks, to cover the Ecological Survey Area supplied by email on 23/06/2015;
 - A technical report including introduction, methodology, results, any legal and planning policy issues and our recommendations as to how they may be overcome; and
 - Appropriate digitised mapping.

2.4 Limitations

- 2.4.1 There were no limitations to the surveys. The bat activity survey transects were completed during either suitable or optimal weather conditions and spaced evenly between July and September which is within the optimal survey season for this type of survey.

2.5 Surveyors

- 2.5.1 The surveys were undertaken by Janine Burnham Bsc (Hons) MRes, Daniel Ward Bsc (Hons) MRes and Kate Elliott BSc (Hons).

3. Methodology

- 3.1.1** A survey area was defined that encompassed the entire site. A transect route was designed to encompass this survey area with 12 stopping points selected in areas identified as being of particular interest to bats (*e.g.* potential foraging areas and commuting routes). The transect route was walked at a steady pace by two ecologists, with three minute stops at each stopping point to listen for, and record, any bat activity. If the transect was completed before the end of the required survey time, it was repeated until the survey duration was completed.
- 3.1.2** All bat passes observed and heard were recorded whilst walking the transect route. A bat pass was defined as an unbroken stream of echolocation calls, heard as a series of 'clicks' on a bat detector as the bat passes in and out of the detector's range. Bat passes were recorded using a Bat Box Duet bat detector and an MP3 recorder. Where possible the location and species of each bat was recorded on a map.
- 3.1.3** The dusk surveys commenced at sunset and continued for two hours and the dawn surveys commenced two hours prior to sunrise, completing at sunrise.
- 3.1.4** A bat activity index was calculated to measure the overall level of activity on the site using the following formula:

$$\frac{\text{Total number of passes for all species during each survey event at each location} \times 100}{\text{The duration time of the survey (mins)}}$$

- 3.1.5** The resulting activity score is used to categorise activity level (Table 1).

Table 1: Categorisation of bat activity level (based on analysis of bat surveys undertaken by Thomson Ecology in 2006 and 2007)

Activity Score	Assessment of Activity Level
Up to 5	Very low
6 - 30	Low
31 - 50	Medium
51 - 90	High
90 +	Very high

- 3.1.6** A set of dusk and dawn activity surveys was carried out on three occasions (Visits 1 - 3). The transect design and first dusk activity survey were conducted on 13th July 2015, the subsequent activity surveys were conducted at dawn on 14th July 2015 and 10th/11th August and 7th/8th September 2015 (see Table 2).
- 3.1.7** All surveys were carried out at the optimal time of year in optimal or suitable weather conditions. The start and end times, percentage cloud cover, temperature, wind strength and weather conditions were recorded for each survey and are shown in Table 2.

Table 2: Survey dates and weather conditions

Visit	Survey	Timing of survey	Temperature (°C)	Cloud over (/3)	Rain	Wind (Beaufort scale)	Overall weather conditions for survey
1	13/07/15 Dusk	21:25 - 23:25	16	3	Drizzle	0-1	Suitable
	14/07/15 Dawn	03:11 - 05:11	15	3	Drizzle	0-1	Suitable
2	10/08/15 Dusk	20:44 - 22:44	16	3	Dry	0-1	Optimal
	11/08/15 Dawn	03:51 - 05:51	10	3	Dry	0-1	Optimal
3	07/09/15 Dusk	19:45 - 21:45	16	2	Dry	0-1	Optimal
	08/09/15 Dawn	04:36 - 06:36	10.5	2	Dry	0-1	Optimal

4. Results

4.1.1 During the transect surveys, one species of bat was recorded commuting or foraging over the site which was identified as common pipistrelle. Visual records collected during the survey included common pipistrelles foraging above areas of dense scrub and ephemeral short perennial habitat, mainly in the south-western half of the site (see Figure 2). The survey results are summarised in Table 3.

Table 3: Summary of bat activity transect results.

Visit	Dates of survey	Number of bat passes recorded		Bat species	Total
		Dusk	Dawn		
1	13 - 14/07/15	9	7	Common pipistrelle	16
2	10 - 11/08/15	2	5	Common pipistrelle	7
3	07 - 08/09/15	23	0	Common pipistrelle	23

4.1.2 The activity score was calculated for each of the three sets of dusk/dawn surveys and the score was used to categorise the level of activity as described in Table 1 in Section 3.15. Activity scores and assessed categories of activity levels are shown in Table 4.

Table 4: Activity scores and assessed activity levels

Visit	Dates of survey	Activity Score	Assessment of Activity Level
1	13 - 14/07/15	6.7	Low
2	10 - 11/08/15	2.9	Very Low
3	07 - 08/09/15	9.6	Low

5. Legal and Planning Policy Issues

- 5.1.1** The content of the legislation and planning policy section is the legislation and planning policy issues that we know are relevant based on this bat activity survey.
- 5.1.2** As set out in Appendix 1, bats and their habitats are strictly protected by a range of legislation and policy, including the following:
- Conservation of Habitats and Species (Amendment) Regulations 2012 (Habitats Regulations) under which offences include ‘to affect significantly the local distribution or abundance of the species to which they belong’;
 - Wildlife and Countryside Act 1981, as amended (WCA); which states that: ‘the presence of a protected species is a material consideration when a local planning authority is considering a development proposal that, if carried out, would be likely to result in disturbance or harm to the species or its habitat’;
 - Countryside and Rights of Way Act. 2000 (CRoW); that compels organisations to have regard for biodiversity when carrying out their functions;
 - Natural Environment and Rural Communities Act (NERC) 2006 that places a duty on every public authority, in exercising its functions, to ‘have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’; and
 - Technical Advice Note 5 (TAN5) which states that ‘protected species, including bats, should be a material planning consideration when local authorities are considering a development proposal that is deemed likely to result in disturbance or harm to the species or its habitat’.
- 5.1.3** In addition, bats are protected by the Newport Local Development Plan 2011-2026 under policies SP1 (Sustainability), SP9 (Conservation of the Natural, Historic and Built Environment) and GP5 (General Development Principles, Natural Environment).
- 5.1.4** The installation and operation of wind turbine generators can lead to an increased risk of killing and/or injury of bat species. The risk is generally considered to be highest where there is a combination of high quality foraging habitat for bats, nearby roost sites and activity of higher risk species (species which behaviourally are more likely to be active within the rotor sweep area). Natural England Technical Information Note 051 states that, based on an analysis of existing information on flight patterns, foraging strategies, species such as the noctule bat (*Nyctalus noctula*) are at higher risk from wind turbines than common pipistrelles (Natural England, 2014).
- 5.1.5** The survey results indicate that the majority of the site supports habitat considered to be of low value for foraging bats. During the three dusk and dawn activity survey visits carried out in July, August and September, a very low or low activity level was recorded for one species of bat, common pipistrelle, with no activity being recorded on the third and final dusk survey visit. On the basis of the survey results, providing that appropriate mitigation is implemented, the risk of the development contravening the legislation protecting bats is considered to be very low.

5.1.6 Common pipistrelle bats are widespread and relatively common throughout South East Wales. (Distribution Atlas of Bats in Britain and Ireland, 1980 - 1999). The absence of records of the species within 1 km of the site (as per the desk study for the extended Phase 1 habitat survey for the site) and the very low to low activity levels recorded during these transect surveys indicate that the development should not have a significant impact on Common Pipistrelle populations on a local scale. The development should, therefore, also be compliant with policies SP1, SP9 and GP5 of the Newport Local Development Plan 2011-2026.

6. Recommendations

6.1 Mitigation

- 6.1.1 The following recommendations are made to ensure that, should bats use the site, any risk from the turbine is minimised:
- 6.1.2 To avoid bat activity within the rotor sweep area it is recommended that the turbine is sited such that the sweep area is at least 50m away from the closest vegetation. This should be measured from the edge of the rotor sweep area (Natural England, 2012).
- 6.1.3 Land immediately surrounding the turbine, to at least a 50m radius, should be managed such that it minimises foraging opportunities for bats. This should include the retention, or replacement, of hard surfacing on the site to prevent the development of vegetation in the future and the maintenance of this vegetation-free area.

6.2 Opportunities for Enhancement

- 6.2.1 Given the known risk to bats which is associated with wind turbine installation (Dubourgh-Savage *et. al.*, 2014), enhancement of the site itself, or land within 250m of the site, which would benefit bats is not recommended. However, measures to enhance other parts of the Newport Docks area for bats could be achieved. This could include the planting of native, nectar-rich plant species as part of the landscaping of the wider site (over 250m from the turbine location) to increase invertebrate abundance which would provide prey for bats.
- 6.2.2 Ecological enhancement of this nature would be in line with Planning Policy Wales (5.2.7) and enable Newport City Council to act in accordance with the duty required of public bodies under the NERC Act, section 40(1) in Wales, which states that '*every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.*'

7. Conclusion

- 7.1.1** The vegetation on the site is considered to be of low value to foraging bats; this is supported by the results of the activity surveys carried out which recorded a low level of bat activity throughout the site. To minimise the risk to bats using the wider site from the proposed wind turbine installation, the mitigation measures made in relation to the siting of the turbine and subsequent habitat management should be followed.
- 7.1.2** In view of the very low and low levels of bat activity recorded at the site, and assuming that the recommended mitigation measures are incorporated into the proposed development it is considered very unlikely that the development will have a detrimental impact on bats and should be compliant with the relevant legislation and planning policies with respect to bats.

8. References

- 8.1.1 *Bat Atlas 2000* - Bat Conservation Trust. Available at:
<https://www.google.com/search?q=bat+atlas&ie=utf-8&oe=utf-8> (Accessed 18/09/2015)
- 8.1.2 Bat Conservation Trust (2012). *Bat Surveys, Good Practice Guidelines*. BCT, London.
- 8.1.3 *Countryside and Rights of Way Act 2000*. Available at:
<http://www.legislation.gov.uk/ukpga/2000/37/contents> (Accessed 18/09/2015)
- 8.1.4 Dubourgh-Savage, M. J., Karpandza, B., Kovac, D., Kervyn, T., Dekker, J., Kopel, A., Bach, P. et. al. (2012) *Guidelines for the consideration of bats in windfarm projects. Revision 14. EUROBATS Publication No. 6 (English Version)*. UNEP/EUROBATS Secretariat, Bonn, Germany
- 8.1.5 Natural England (2012). *Technical Information Note TIN051, Bats and onshore wind turbines. Interim guidance*. Natural England
- 8.1.6 *Natural Environment and Rural Communities Act 2006*. Available at:
<http://www.legislation.gov.uk/ukpga/2006/16/contents> (Accessed 18/09/2015)
- 8.1.7 Newport City Council (2013) *Newport Local Development Plan 2011-26, Deposit Plan*. Newport City Council, Newport
- 8.1.8 *The Conservation of Habitats and Species (as amended) Regulations 2012*. Available at:
<http://www.legislation.gov.uk/uksi/2012/1927/contents/made> (Accessed 18/09/2015)
- 8.1.9 Thomson Ecology Ltd. (2011). *Newport Dock proposed wind turbine site, Gwent*. (report reference NHAB178/001/001). Thomson Ecology Ltd
- 8.1.10 Thomson Ecology Ltd. (2015). *Preliminary Ecological Appraisal, Newport Docks*. (report reference AABP105/002/002/001) Thomson Ecology Ltd.
- 8.1.11 Welsh Assembly Government (2009). *Planning Policy Wales. Technical Advice Note 5: Nature Conservation and Planning*. Welsh Assembly Government.
- 8.1.12 Welsh Assembly Government (2014). *Planning Policy Wales*. Available at:
<http://gov.wales/docs/desh/publications/140731planning-policy-wales-edition-7-en.pdf>
(Accessed 18/09/2015)
- 8.1.13 *Wildlife and Countryside Act 1981* (as amended). Available at:
<http://www.legislation.gov.uk/all?title=wildlife%20and%20countryside> (accessed 18/09/2015)

Appendix 1 - Bats

8.2 Introduction

- 8.2.1 A summary of the biology of British bats and the legislation and policy that protects them concern is provided below.

8.3 Biology

- 8.3.1 There are 18 British species of bats, belonging to two families; the horseshoe bats (*Rhinolophidae*) and vesper bats (*Vespertilionidae*). Of the 18 species, two species are horseshoe bats and belong to the genus *Rhinolophus*. The remaining 16 species are vesper bats and are sub-divided between six genera; *Myotis*, *Eptesicus*, *Nyctalus*, *Pipistrellus*, *Plecotus* and *Barbastella*. Whilst there are many differences in the biology of the different species, all share certain characteristics and these are described below.

Roosting

- 8.3.2 Bat species utilise roost sites of varying character; some preferring tree roosts whilst others are thought to be almost entirely dependent on built structures. Most bats will have a number of available roosting sites within their range, which they move between throughout the year. They are generally faithful to their roosts and a colony of bats may use the same roost site(s) year after year.
- 8.3.3 Bats hibernate during the winter and will often gather to hibernate communally, remaining in the same hibernation roost from November to February/March. Hibernation roost sites typically have a constant low temperature and high humidity levels. Sites include caves, mines, thick walled buildings and hollow trees. With the arrival of spring, the ambient temperature and day length increase and bats begin to leave their hibernation roosts, either moving immediately to summer roost sites or occasionally, to a transitional roost.
- 8.3.4 By June, breeding females will begin to congregate in maternity roost sites where they will give birth to, and nurture their young. Male bats are also occasionally found roosting in maternity roosts but during this period they mostly roost alone. Maternity roost sites include hollowed out trees, buildings and bridges. Male bats may use similar sites but also cracks and crevices in trees, under loose tiles or even amongst dense ivy growth during the summer period. Similar sites may be used by bats for brief periods during the night when they are resting or feeding on recently caught prey. In autumn, male bats establish mating roosts and are visited by females. A variety of roost sites may be used until the bats return to their hibernation roosts.

Foraging

- 8.3.5 All British bat species feed on invertebrates, with flies, beetles, moths and other insects making up much of their diet. Areas with an abundance of insect prey, such as woodlands, scrub, wetlands, river corridors and flower rich grasslands are therefore favoured foraging sites for

bats. Habitats such as intensively farmed arable land, and amenity grassland support a much lower invertebrate abundance and are therefore less favoured foraging habitats for bats.

Commuting

- 8.3.6** Bats favour roost sites in close proximity to suitable foraging habitat, however given variation in prey availability, land-use change, and competition with other bats, for at least part of the year bats must commute between their roosts and foraging habitat.
- 8.3.7** Commuting routes tend to follow linear features in the landscape such as hedgerows, woodland edges, rivers and other watercourses, particularly when crossing areas of less favourable habitat. The distance that bats commute between roost sites and foraging areas is dependent on local geography and also the species of bat. Some species will travel up to 18km, though shorter distances are more typical.

8.4 Site Designation

- 8.4.1** All bat roosts in the UK receive protection under the following legislation:
- Conservation of Habitats and Species (Amendment) Regulations 2012 (which replaces the Conservation (Habitats &c) Regulations 1994 as amended)
 - Wildlife and Countryside Act 1981, as amended;
 - The Countryside and Rights of Way Act 2000 (which amends the Wildlife and Countryside Act); and
 - Natural Environment and Rural Communities Act 2006 (which amends the Wildlife and Countryside Act).
- 8.4.2** This is described in more detail under 'Species Protection' below. In addition, the most important sites for certain bat species in the UK receive further statutory protection through designation of Special Areas of Conservation (SACs) and/or Sites of Special Scientific Interest (SSSIs).
- 8.4.3** Four UK bat species, greater and lesser horseshoe, barbastelle and Bechstein's bats, are included on Annex II of the European Community Directive of the Conservation of Natural Habitats and of Wild Fauna and Flora, referred to as the Habitats Directive. The Habitats Directive is transposed into UK law by the Conservation of Habitats and Species (Amendment) Regulations 2012. This legislation requires that areas are designated as Special Areas of Conservation (SACs) to protect populations of these 4 bat species. To date, 9 SACs have been designated specifically to protect these species in Wales, with a further 3 SACs where their presence is a qualifying feature but not the primary reason for the statutory designation.
- 8.4.4** Sites designated under the Wildlife and Countryside Act 1981 (WCA) are known as Sites of Special Scientific Interest (SSSIs). SSSIs received further protection under the Countryside and Rights of Way Act 2000 (CROW) and the Natural Environment and Rural Communities (NERC) Act 2006.

8.4.5 Some SSSIs are designated for the population(s) of bats that they support. The criteria for selecting SSSIs on the basis of their bat populations are provided in Guidelines for the Selection of Biological SSSIs (NCC, 1989):

- Greater horseshoe bat - all main breeding roosts and all winter roosts with 50 or more adult bats;
- Lesser horseshoe bat - all main breeding roosts containing 100 or more adult bats and all winter roosts containing 50 or more bats;
- Barbastelle, Bechstein's and grey long-eared bats - any traditional breeding roosts;
- Natterer's, Daubenton's whiskered, Brandt's, serotine, noctule and Leisler's bats - only exceptionally large breeding roosts or those with a long history of use; and
- Mixed Roost sites - all hibernacula containing 4 or more species and more than 50 individuals or 3 species and 100 or more individuals or 2 species and 150 or more individuals, though these criteria may be lower in some parts of the UK.

8.4.6 Sites that qualify as SSSIs for the bat populations they support are considered to be of at least national importance for the bats they support.

8.4.7 Sites designated for nature conservation at the county level may also include bat populations as part of the site qualifying criteria, although the criteria used may vary from county to county. Such sites are protected through the planning system and there is generally a presumption against development that affects such sites in local authority development plans.

Planning Policy

8.4.8 Planning Guidance, Technical Advice Note 5; Nature conservation and planning (TAN5) gives further direction with respect to land use and development. It states that protected species, including bats, should be a material planning consideration when local authorities are considering a development proposal that is deemed likely to result in disturbance or harm to the species or its habitat.

8.4.9 Furthermore, the Natural Environment and Rural Communities (NERC) Act (2006) places a duty on all public authorities to conserve biodiversity; conserve including preservation and enhancement.

8.5 Species Protection

Legislation

8.5.1 All bat species are protected by the Conservation of Habitats and Species (Amendment) Regulations 2012. The Regulations make it an offence, with very few exceptions, to:

- Deliberately capture, injure or kill a bat;
- Deliberately disturb a bat in such a way as to be likely:
 - i. to impair its ability to survive, to breed or reproduce, or to rear or nurture its young; or
 - ii. to impair its ability to hibernate or migrate; or

- iii. to affect significantly the local distribution or abundance of the species to which they belong.

- Damage or destroy a breeding site or resting place of a bat;
- Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead bat, or any part of, or anything derived from a bat.

8.5.2 In addition to the protection given to bats under the Conservation of Habitats and Species (Amendment) Regulations 2012 already described, bats are also partially protected in Wales under the Wildlife and Countryside Act, which adds the following offences (with certain exceptions):

- Disturbance while it is occupying a structure or place which it uses for shelter or protection; or
- Obstructing access to any structure or place used for shelter or protection.

8.5.3 A roost is any structure or place used by bats for shelter or protection. As bats tend to re-use the same roosts year after year, the roost is protected whether bats are present or not at the time.

8.5.4 In this context, 'damage' would include such operations as treatment of wood with toxic preservatives or use of rodenticides near roosting bats while 'disturbance' includes any work in or affecting a bat roost.

8.5.5 If proposed actions, such as redevelopment of an existing building may lead to an offence under the above legislation, appropriate mitigation which seeks to avoid these impacts should be devised and implemented under licence. Licences for 'scientific or educational', 'ringing or marking' and 'conservation' may be issued by Natural Resources Wales, licences for the reason of 'preserving public health or public safety' by the Welsh Assembly Government (WAG).

8.5.6 In addition to the above legislation, all bats are protected under the Bonn Convention, within which the Agreement on the Conservation of Bats in Europe (1991) or EUROBAT, establishes a mechanism for international collaboration to conserve bats and their habitats, including foraging habitats. All European bat species are covered under Appendix II of the Conservation of Migratory Species of Wild Animals (CMS).

8.5.7 The Hedgerow Regulations 1997 provide for the conservation of 'important' hedgerows and their constituent trees. The presence of a protected species such as bats is included in the assessment of whether a hedgerow is considered 'important' and applications to remove such hedgerows must be made to the planning authority.

8.6 UK Post-2010 Biodiversity Framework and Species of Principal Importance

8.6.1 Published by the Joint Nature Conservation Committee (JNCC) and the Department for Environment, Farming and Rural Affairs (Defra) in July 2012, the UK Post-2010 Biodiversity Framework identifies UK-scale activities and priority works that are required to deliver the EU Biodiversity Strategy. Following a process of devolution, the framework is underpinned by country level strategies which are now largely responsible for continuing the work carried out

under the former UK Biodiversity Action Plans (UK BAP). JNCC guidance dictates that UK BAP background information on priority species and habitats still remains relevant and it now forms the basis of country specific priority lists which, for Wales, are specified under Section 42 of the NERC Act 2006. The Section 42 list is used as a guide and a reference for ensuring that appropriate consideration is given to the conservation of biodiversity in all development activity, and affords legal protection to those species and habitats it includes.

8.6.2 Seven species of bats (Barbastelle, Bechstein's, greater and lesser horseshoe, brown long-eared, noctule and soprano pipistrelle) have been adopted as Species of Principal Importance for the Conservation of Biodiversity in Wales. This places a duty on all government departments to have regard for the conservation of these species and on the Secretary of State to further, or promote others to further, the conservation of these species. Furthermore, TAN5 states that species of Principal Importance for the conservation of biodiversity should be protected from the adverse effects of development, which presumably includes those listed the former UK BAP and on Local or Regional priorities species lists.

8.7 References

- 8.7.1** Altringham, J. (2003) *British Bats*. New Naturalist Series No. 93.
- 8.7.2** Entwistle, A. C., Harris, S., Hutson, A., Racey, P., Walsh, A., Gibson, S., Hepburn, I., and Johnston, J. (2002) *Habitat management for bats: A guide for land managers, land owners and their advisors*. JNCC, Peterborough.
- 8.7.3** Highways Agency (1996 et seq) *Design Manual for Roads and Bridges, Volume 10 Environmental Design and Management, Section 4 The Good Roads Guide- Nature Conservation*, Part 6 Nature Conservation Management Advice in Relation to Bats.
- 8.7.4** Hundt L (2012). *Bat Surveys: Good Practice Guidelines*, 2nd Edition. Bat Conservation Trust, London.
- 8.7.5** JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). (2012). *UK Post-2010 Biodiversity Framework*. Available from: <http://jncc.defra.gov.uk/page-6189>.
- 8.7.6** Mitchell-Jones, A.J. & McLeish, A.P. (1999). *Bat Workers' Manual* (2nd Edition). Joint Nature Conservancy Committee, Peterborough
- 8.7.7** NCC (1989) *Guidelines for Selection of Biological SSSIs*. Nature Conservancy Council, Peterborough
- 8.7.8** Office of the Deputy Prime Minister (2005) *Planning Policy Statement 9; Biodiversity and Geological Conservation*.
- 8.7.9** Russ, J. (1999). *The Bats of Britain and Ireland*. Alana Ecology, Shropshire.

Appendix 2 - Bat Activity Survey Results

Table 5: Survey data from Visit 1 13th July 2015 (Dusk)

Section (between numbered stopping points)	Time after sunset (mins)	Species	No of passes
1 -2	NO PASSES		
2-3	22	Common pipistrelle	4
3-4	NO PASSES		
4-5			
5-6			
6-7	57	Common pipistrelle	3
7-8	NO PASSES		
8-9	106	Common pipistrelle	1
9-10	NO PASSES		
10-11			
11-12			
12-1	159	Common pipistrelle	1

Table 6: Survey data from Visit 1 - 14th July 2015 (Dawn)

Section (between numbered stopping points)	Time after sunrise (mins)	Species	No of passes
1 -2	NO PASSES		
2-3	18	Common Pipistrelle	2
	19	Common Pipistrelle	1
3-4	NO PASSES		
4-5	22	Common Pipistrelle	3
5-6	NO PASSES		
6-7	59	Common Pipistrelle	1
7-8	NO PASSES		
8-9			
9-10			
10-11			
11-12			

Table 7: Survey data from Visit 2 - 10th August 2015 (Dusk)

Section (between numbered stopping points)	Time after sunset (mins)	Species	No of passes
1 -2	NO PASSES		
2-3			
3-4			
4-5	94	Common Pipistrelle	2
5-6	NO PASSES		
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			

Table 8: Survey data from Visit 2 - 11th August 2015 (Dawn)

Section (between numbered stopping points)	Time after sunrise (mins)	Species	No of passes
1 -2	NO PASSES		
2-3	69	Common Pipistrelle	3
3-4	NO PASSES		
4-5			
5-6			
6-7			
7-8	58	Common Pipistrelle	1
8-9	NO PASSES		
9-10	39	Common Pipistrelle	1
10-11	NO PASSES		
11-12			

Table 9: Survey data from Visit 3 - 7th September 2015 (Dusk)

Section (between numbered stopping points)	Time after sunset (mins)	Species	No of passes
1 -2	NO PASSES		
2-3	24	Common Pipistrelle	4
3-4	NO PASSES		
4-5	NO PASSES		
5-6	38	Common Pipistrelle	1
6-7	42	Common Pipistrelle	
7-8	45	Common Pipistrelle	5
	48	Common Pipistrelle	6
	54	Common Pipistrelle	5
8-9	NO PASSES		
9-10			
10-11			
11-12			

Table 10: Survey data from Visit 3 - 8th September 2015 (Dawn)

Section (between numbered stopping points)	Time after sunrise (mins)	Species	No of passes
1 -2	NO PASSES		
2-3			
3-4			
4-5			
5-6			
6-7			
7-8			
8-9			
9-10			
10-11			
11-12			