Isle of Wight

Windfarm Site Search Assessment

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EXECUTIVE SUMMARY

The Isle of Wight Council is replacing the Unitary Development Plan with a Local Development Framework, known as the Island Plan, which is driven by the need for sustainable development and economic regeneration and is seeking to understand the potential for production of electricity from wind turbines on the Island.

The Council appointed URS to assess the methodologies and validate the windfarm site selection previously provided in three available reports. In addition, the Council provided further information of protected areas to enable URS to provide a map defining areas with potential for windfarm development.

The methodology used in the previous reports is technically and environmentally appropriate, but was based on outdated assumptions and negative filtering. The reports came to different conclusions while using similar inputs, and identified 6 different areas in total, none of which coincide. Therefore, to overcome this mismatching, URS applied a new methodology for the identification of suitable areas, using the best of both methodologies, positive filtering and updated assumptions.

The URS methodology has based the site search on positive filtering process, based on the superposition of GIS layers for the search of sites that gather favourable characteristics for wind farms in terms of wind, topography, grid connection and access, without applying any restriction, obtaining technically feasible sites identified independently of environmental constraints, and once sites have been located a negative filtering is applied to identify the main constraints, along with mitigation measures. The methodology classifies areas as suitable, not suitable and suitable with restriction. In the last, preventive and/or mitigation measures are necessary to ensure the compatibility of windfarm developments with significant environmental constraints, especially because of the particular landscape value of Isle of Wight (more than half of the Island being an AONB)

URS has identified 9 areas which hold 12 sites suitable (3) or suitable with restrictions (9), with capacities ranging from 4 to 12 MW. The 3 non-restricted sites could accommodate a capacity of between 18 - 24 MW. Comparing previous reports and the URS report, one of the areas previously identified is located within a URS non-restricted area and further 4 sites are within URS with-restriction areas. The remaining have been considered not-suitable.

To conclude, none of the previously available reports are sound for the Island Plan core Strategy and this report should be used instead.

Furthermore, URS recommends for the Island Plan core Strategy further assessment on some of the findings of this study in order to successfully develop the Isle of Wight Council's sustainable community strategy – "Eco-Island", which are defined in Chapter 6, listed below:

- **PR campaign**
- **Landscape Assessment**.
- **Wind maps**.
- **Grid Connection**.
- **Economics**.
- **Land ownership**.

INTRODUCTION

1.1 Introduction

The aim of this report is to assess the Methodology for Search Areas for Wind Turbine Sites in the Isle of Wight. The Isle of Wight Council is replacing the Unitary Development Plan with a Local Development Framework, known as the Island Plan, which is driven by the need for sustainable development and economic regeneration.

The Isle of Wight Council holds two reports identifying areas with potential for wind turbine sites within the Island. The Council has appointed URS to assess the methodologies of these reports and validate the sites selected for potential wind farm development, in addition to providing the Council with a final map of potentially suitable sites.

The URS assessment outlines the potential amount of power that could be delivered, **subject to detailed analysis of individual sites**. The assessment also takes into account technical and environmental factors, national guidance and the Isle of Wight Council's sustainable community strategy 'Eco-Island'.

URS' assessment uses the existing reports to identify environmental constraints and the latest turbine advances to determine potential locations for wind turbine sites.

1.2 Objectives

The objectives for this report are as follows:

- To validate the methodologies used in existing reports;
- Describe and assess the previously identified areas for commercially and community based wind turbine facilities;
- Identify gaps in the previously applied methods; and
- Assess the robustness of the existing two reports as evidence for the Island Plan Core Strategy.

1.3 Structure of the Report

The report comprises 6 chapters and an appendix. The first chapter is the introduction that sets out the general approach to the main objectives of the document and its structure.

Following the introduction, Chapter 2 defines the scope of the report and lists the documents supplied by Isle of Wight Council.

Chapter 3 Planning Policy Context focuses on the planning policy applying to wind farms developments at the national, regional and local levels.

Chapter 4 Analysis of Existing Documents summarises the existing documents listed in Chapter 2 and introduces URS' methodology for the search.

Chapter 5 Assessment of the Search Areas and Description of the Search Areas already identified, assesses the search areas and identifies new potentially viable wind farm sites.

Chapter 6 Conclusions sets out the conclusions of the report.

2. SCOPE OF THE STUDY

2.1 Information provided by the Isle of Wight Council

Isle of Wight Council has supplied URS with the following documents:

- Briefing Note - Isle of Wight Wind Technology Park, by Terence O'Rourke plc;
- Draft Scoping Document - Isle of Wight Wind Technology Park, by Aerolaminates Ltd; and
- Site selection for wind turbine clusters for Isle of Wight, by Whitbybird.

In addition to this these reports, the Isle of Wight Council has provided URS with the following GIS information:

- SAC –Special Area of Conservation;
- SPA – Special Protection Areas;
- SSSI – Site of Special Scientific Interest;
- AONB –Area of Outstanding Natural Beauty;
- Heritage Coast;
- National Nature Reverses;
- RAMSAR sites;
- Airports;
- Conservation Areas;
- Urban Areas – Development Envelopes showing the extent of built up areas;
- Historic Parks and Gardens;
- Local Natural Reserves;
- RIGGS – Regionally Important Geological and Geomorphological Sites; and
- SINC - Sites of Importance for Nature Conservation

2.2 Ratification of Methodologies

To validate the methodologies used in the 'Draft Scoping Document - Isle of Wight Wind Technology Park' and 'Site selection for wind turbine clusters for Isle of Wight' documents, URS has reviewed the environmental and the technical aspects within the reports. URS has reviewed these documents based on current knowledge, good practice and available technology as well as the applicable planning policies, in order to determine whether both reports have considered all necessary aspects. This is presented in Chapter 4.

2.3 Ratification of the Proposed Search Areas

URS has validated the proposed search areas for both commercially viable and community based wind turbine facilities.

URS has considered wind farms the following definition for both types of wind farm development:

- Community based wind farm: usually smaller in scale in terms of size of units and investment, generating locally used energy which can be used by either (a) an individual site, (b) a local community or (c) transported straight into the National Grid. Generally up to 6MW.

- Commercial wind farm: larger in scale in terms of investment, with generated energy transported straight into the National Grid. Generally any project above 12 MW.

However, there are other projects, generally between 6 to 12 MW, that due to the location, the levels of potential investment, and the complexity, have been considered for both types of investment.

The proposed search areas are listed and described as: 'suitable', 'suitable with restrictions' and 'not-suitable' for wind turbine installation. A map displaying these areas has been produced and is presented in Chapter 5.

2.4 Identification of Gaps in the Methodology

URS has identified any gaps in the methodologies used in these reports and has recommended actions for overcoming any such gaps. In addition, URS has put forward appropriate measures for mitigating possible environmental, planning or technical issues.

2.5 Robustness of the Reports as evidence for the Island Plan Core Strategy

As a conclusion of the above listed work, URS has validated the robustness of the available reports for the Island Plan Core Strategy.

3. Planning Policy Context

This Chapter identifies the relevant planning policy considerations for the installation of small to medium scale wind farms (between 2 and 10 wind turbines per site). This Chapter includes reference to national, regional and local policies.

3.1 Planning Policies

Planning Policies, applying to wind farm developments are listed below:

LEVEL	POLICY	GENERAL SCOPE
NATIONAL POLICIES	**Energy White Paper 2007**	The UK Government's strategy for delivering energy security and the necessary transition to a low carbon economy.
	PPS1- Delivering Sustainable Development	Identifies that sustainable development is the core principle underpinning the UK's planning system. Published in January 2005.
	PPS7- Sustainable development in rural areas	This sets out ways in which development in rural areas can be brought forward in a sustainable manner.
	PPS22- Renewable Energy	Observes that the Government had previously set a target to generate 10% of UK electricity from renewable energy sources by 2010. The Energy White Paper (February 2003) sets out the Government's aspiration to double this figure by 2020, and suggests that still more renewable energy will be needed beyond that date.
REGIONAL POLICIES	**The Draft South East Plan, 2006**	The Draft South East Plan was submitted to Government on 31 March 2006. The Plan provides a framework for the region for the next 20 years to 2026. In July 2008 the Government Office for the South East launched a public consultation on its proposed changes The SoS consider that it is unnecessary to designate Isle of Wigth as sub-region. However some IOW policies are retained with a few amendments. SE Plan Core Policies also mentioned the 10% of the energy demand to be met from renewables for major development. The Government response has not proposed any change to this.
LOCAL POLICIES	**The Unitary Development Plan** was adopted in May 2001.	The Isle of Wight Unitary Development refers to renewable energy.

3.2 National Policy

3.2.1 2007 Energy White Paper: Consultations

The 2007 Energy White Paper sets out the UK Government's strategy for delivering energy security and the necessary transition to a low carbon economy. The paper supports the provision of legally binding carbon targets for the whole UK economy through the draft Climate Change Bill, 2008. Once passed, the Climate Change Bill will require a 60% reduction in carbon emissions by 2050, and at least a 26% reduction in carbon emissions by 2020 (against a 1990 baseline). In this context, renewable energy is seen as having "a key role to play in reducing carbon emissions and achieving security of supply". The UK has some of the richest renewable resources in Europe – particularly in terms of wind and marine (wave and tidal stream) resources.

Given this context, the White Paper is strongly supportive of renewables, and reaffirms the government's commitment to see 10% of UK electricity being produced from renewable sources by 2010, rising to 20% by 2020. It also confirms the government's intentions to strengthen the main incentive mechanism for renewables, the Renewables Obligation (RO), by increasing it to up to 20% as and when increasing amounts of renewables are deployed.

3.2.2 Planning Policy Statement: Planning and Climate Change – Supplement to Planning Policy Statement 1

This PPS on climate change supplements PPS1 by setting out how planning should contribute to reducing emissions, stabilising climate change and take into account the associated unavoidable consequences. Of particular relevance to this report is section 20.

Section 20 addresses how planning authorities should develop their core strategies to take into account renewable energy developments. In terms of specific locational considerations, the planning authority should:

- Not require applicants for energy developments to demonstrate the overall need for renewable energy and its distribution, nor question the energy justification for why a proposal for such development must be sited in a particular location;
- Ensure any local approach to protecting landscape and townscape is consistent with PPS22 and does not preclude the supply of any type of renewable energy other than in the most exceptional circumstances;
- Alongside any criteria-based policy developed in line with PPS22, consider identifying suitable areas for renewable and low-carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources, but in doing so take care to avoid stifling innovation including by rejecting proposals solely because they are outside areas identified for energy generation; and
- Expect a proportion of the energy supply of new developments to be secured from decentralised and renewable or low-carbon energy sources.

3.2.3 Planning Policy Statement 22 (PPS 22)

PPS 22 is the Government's Planning Policy Statement on Renewable Energy. Of particular relevance to this report into suitable areas of search for wind farms are sections 9-17, which are dedicated to locational considerations.

- In terms of Internationally Designated Sites (sections 9 and 10 of PPS 22) it is noted that planning permission for renewable energy developments likely to have an adverse effect on a site of international importance for nature conservation (SPA, SAC, RAMSAR Site or World Heritage Site) should only be granted once an assessment has shown that the integrity of the site would not be adversely affected. If renewable energy development would result in an adverse effect on the integrity of an internationally designated nature conservation site, planning permission should only be granted where there is no alternative solution and there are imperative reasons of overriding public interest, including those of a social or economic nature.

- Section 11 covers the Government's policy with respect to sites with nationally recognised designations (Sites of Special Scientific Interest, National Nature Reserves, National Parks, Areas of Outstanding Natural Beauty, Heritage Coasts, Scheduled Monuments, Conservation Areas, Listed Buildings, Registered Historic Battlefields and Registered Parks and Gardens). It notes that planning permission for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area will not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits.

- Section 12 states that '*Regional planning bodies and local planning authorities should set out in regional spatial strategies and local development documents the criteria based policies which set out the circumstances in which particular types and sizes of renewable energy developments will be acceptable in nationally designated areas. Care should be taken to identify the scale of renewable energy developments that may be acceptable in particular areas.* ***Small-scale developments should be permitted within areas such as National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts provided that there is no significant environmental detriment to the area concerned*****'.** Small scale is not defined in PPS22 but for the purposes of this report we define small scale as ……(relate to community based schemes? – your suggestions are welcomed)

- **Buffer Zones (section 14) states that** Regional planning bodies and local planning authorities should not create 'buffer zones' around international or nationally designated areas and apply policies to these zones that prevent the development of renewable energy projects. However, the potential impact on designated areas of renewable energy projects close to their boundaries will be a material consideration to be taken into account in determining planning applications.

- In terms of **Local Designations (section 15)**, local landscape and local nature conservation designations should not be used in themselves to refuse planning permission for renewable energy developments. Planning applications for renewable energy developments in such areas should be assessed against criteria based policies set out in local development

documents, including any criteria that are specific to the type of area concerned.

- Section 16 notes that because most renewable energy resources can only be developed where the resource exists and where it is economically feasible, local planning authorities should not use a sequential approach in the consideration of renewable energy projects (for example, by giving priority to the re-use of previously developed land for renewable technology developments). However, in preparing local development documents and in discussions with developers, planning authorities should recognise that some previously developed sites, whilst being unsustainable in terms of other land uses (e.g. a site in a remote location unsuitable for housing) may offer opportunities for developing some forms of renewable energy projects.

3.3 Regional Policy

3.3.1 The Draft South East Plan, 2006

This Regional Plan provides a framework for the region for the next 20 years to 2026. It brings together policies for development with other policies and programmes that influence the nature of places and how they function, including those governing health, social issues, the economy, culture, skills and the environment.

In terms of locational considerations associated with renewable energy and low-carbon developments, Policy EN5 of the Plan states that '*Local Development Frameworks should encourage the development of renewable energy in order to achieve the regional and sub-regional targets. Renewable energy development, particularly wind and biomass, should be located and designed to minimise adverse impacts on landscape, wildlife and amenity. Outside urban areas, priority should be given to development in less sensitive parts of countryside and coast, including on previously developed land and in major transport areas*'.

Furthermore Policy EN5 notes that the location and design of all renewable energy proposals should be informed by landscape character assessment where available. In addition, '*Within areas of protected and sensitive landscapes, including AONBs or national parks, development should generally be of a small scale or community based Proposals within or close to the boundaries of designated areas should demonstrate that development will not undermine the objectives that underpin the purposes of designation*'.

In this context Isle of Wight council could consider Community based windfarm previously defined in section 2.2.

3.4 Local Policy

3.4.1 Isle of Wight Unitary Development Plan, adopted 2001

The Isle of Wight Unitary Development Plan refers to renewable energy. Under proposal U18, proposals for the production of energy from renewable sources will be approved provided that certain criteria are met. These are as follows:

- That the overall effect of all renewable energy developments is at a scale that is sympathetic to the intimate character and landform of the Island;
- That renewable energy developments avoid and do not have an unacceptable adverse impact on the most sensitive areas of designated landscape, coastal, nature conservation or archaeological importance;
- That these developments minimise any detrimental effect from noise, electromagnetic, visual or similar interference; and
- That they do not have a detrimental effect on water requirements or air quality.

The UDP also states that: '*The Council's view is that this plan should reflect a positive approach to harnessing the generating potential from renewable energy sources in an environmentally acceptable way'.* The UDP makes it clear that the cumulative effect of individual small-scale developments needs to be considered given the intimate nature and scale of the Island's landscape.

4. ANALYSIS OF EXISTING DOCUMENTS

The aim of this chapter is to analyse the methodologies used in the reports supplied by Isle of Wight Council for the site selection of wind turbines installations on the Isle of Wight.

The documents supplied by the Isle of Wight Council to URS are:

- Briefing Note - Isle of Wight Wind Technology Park, by Terence O'Rourke plc;
- Draft Scoping Document - Isle of Wight Wind Technology Park, by Aerolaminates Ltd; and
- Site selection for wind turbine clusters for Isle of Wight, by Whitbybird.

4.1 Review of Existing Reports

4.1.1 Document: Briefing Note - Isle of Wight Wind Technology Park, by Terence O'Rourke plc

The document 'Briefing Note - Isle of Wight Wind Technology Park' was prepared by Terence O'Rourke plc on behalf of Aerolaminates Ltd, a subsidiary of NEG Micon A/S (currently known as VESTAS A/S) and is dated 25th September 2000. This report focuses on the development of a R&D test site facility, where Aerolaminates Ltd blade technology and products can be tested close to its production facility in Newport (Isle of Wight).

The report selected key criteria to map areas of potential wind farm development (including wind resource, topography, proximity of settlements, electricity grid connection and road access) and areas of constraint. As a result, six areas were identified for further analysis from the desktop study and an additional five areas were identified following site inspections (giving a total of 11 sites).

After assessing each of the identified sites against the planning, environmental and technical criteria, three areas were selected for further investigations (located in the Afton, Browcombe Down and Bleakdown areas), which lead to a preferred area not disclosed in the document.

The report sets out the next stage in the development of the R&D test site facility to be the installation of an anemometer for gathering actual wind resource information. It was noted that this would need planning permission and any subsequent development of the R&D test site facility would require and an Environmental Impact Assessment (EIA).

The document 'Briefing Note - Isle of Wight Wind Technology Park' does not define the criteria upon which the mapping was based , and consequently site feasibility; therefore there is a gap between technical and environmental factors.

4.1.2 Document: Draft Scoping Document -Isle of Wight Wind Technology Park by Aerolaminates Ltd

The document 'Draft Scoping Document -Isle of Wight Wind Technology Park' was prepared by Terence O'Rourke plc on behalf of Aerolaminates Ltd and is

dated November 2000. This report undertakes a strategic assessment of the Isle of Wight with the view to identifying a site for an Island Wind Technology Park, a renewable energy generating facility and R&D test site. This is the scoping document referred to in the Briefing Note - Isle of Wight Wind Technology Park.

The report was initially based on information provided by the Isle of Wight Council Geographical Information System (GIS) and a filtering of process using constraints and opportunities. The six sites selected were then appraised on site, which led to three preferred areas.

The three areas were reviewed further with landscape assessments undertaken, which led to a west-central Isle of Wight site being identified as the preferred option. According to the report, the site is in the vicinity of Afton and it has a capacity for up to 6 wind turbines of 2.0 MW (a total of 12 MW).

This report is a complete and sound document. However, it is dated November 2000 and it requires updating, since some of key criteria in the development of wind farms has changed. This is discussed later in this Chapter.

4.1.3 Document: Site selection for wind turbine clusters for Isle of Wight, by Whitbybird

The document 'Site selection for wind turbine clusters for Isle of Wight' was prepared by Whitbybird and is dated September 2004. The document summarises a feasibility study of potential sites on the Isle of Wight for the development of small scale to medium size wind turbine clusters (< 7MW).

The assessment starts mapping the Island wind speed and overlapping landscape designation areas, aviation constraints, urban areas and the electricity distribution grid. The mapping exercise concludes that there are few sites outside the AONB with good wind speeds (greater than 6,5 m/s at 25 m) and that increasing the available sites would require a softening of the AONB constraints.

The document lists three sites with potential for wind development (near Beaper Farm and St Helens, Arreton Valley and St Georges Down) and two sites which offer limited scope (landfill site near Newport and North of Swainston Manor).

This report is a technical and precise but it is based on outdated assumptions, like buffer zones, dimensions, wind speeds, etc, and.more importantly it excludes AONB areas. This is further assessed in Section 4.2.1

4.2 Assessment of the Methodologies Used in the Documents Provided

4.2.1 Comments on Briefing Note - Isle of Wight Wind Technology Park

URS considers that this document is an introduction / summary to the main document 'Draft Scoping Document - Isle of Wight Wind Technology Park'.

The document presents the results for the search sites without providing the methodology that defines the selected areas. The methodology is fully explained and referenced to in the 'Draft Scoping Document- Isle of Wight Wind Technology Park' and, therefore, URS has focused on the assessment of the 'Draft Scoping Document- Isle of Wight Wind Technology Park'.

4.2.2 Comments on Draft Scoping Document- Isle of Wight Wind Technology Park

The methodology used in this report is appropriated and effective. The report, however, is dated November 2000 and some of the aspects considered within the policy framework require updating based on the development and experience gained in developing windfarm during the last eight years (i.e. development in technology and monitored actual environmental impact).

The methodology followed in the report was based on four-stage process:

1 Desk research of potential opportunities and constraints;

2 Negative filter to highlight areas of constraints;

3 Positive filter to highlight areas of opportunity; and

4 Analysis of the filtering process and selection of potential locations for search areas.

The process is logical and well prepared.

4.2.2.1 Desk research of potential opportunities and constraints

The report does not detail the desk research and therefore URS has no information to validate the methodology for this part of the report.

4.2.2.2 Negative Filter: Urban Areas and Settlements

Urban areas have been considered as an absolute constraint; URS validates this approach when affecting residential areas but our view is that an increase in the distance from 400m to 800m is more appropriate to reduce adverse noise and shadow flicker impact.

Based upon measured noise levels associated with 2MW turbines a more conservative distance of 800m is considered to be more appropriate.

4.2.2.3 Negative Filter: Sites of Nature Conservation Interest (SSSI, SPA, SINC, etc)

- SPA and RAMSAR areas have been excluded because of their natural value, possible negative impact to birds and need for nature conservation; URS supports this approach and they have to be considered as an absolute constraint.

- SINC and SSSI areas have been excluded and deemed as an absolute constraint given their natural conservation interests; URS considers that, before ruling out these areas from wind farm development, a further assessment should be carried out. Developers should assess the impact of any scheme in these areas during the planning process and present mitigation measures as part of the EIA.

4.2.2.4 Negative Filter AONB, Heritage Coast and other landscape constraints

The report states the difficulty of implementing any wind farm inside AONB; Section 12 of the PPS22 reads: '*Small-scale developments should be permitted within areas such as National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts provided that there is no significant environmental detriment to the area concerned'. T*herefore, URS does not consider this an absolute constraint, especially when most of the Island is covered by this designation. URS suggests a further detailed assessment of the sites selected inside AONB before ruling them out.

4.2.2.5 Negative Filter Mineral Safeguarding Areas

The report doesn't consider this issue as an absolute constraint; URS supports with this approach.

4.2.2.6 Negative Filter: Conservation Areas, Historic Parks and Gardens

The report considers these designations as absolute constraints; URS agrees with this approach.

4.2.2.7 Negative Filter: National Trails / Picnic Sites / Viewpoints

The report doesn't consider these elements as absolute constraints, and suggests the possibility for the installations to provide interesting visual features as tourist attractions; URS agrees with this approach, although it is necessary to consider each of these issues individually and on a site by site basis.

4.2.2.8 Negative Filter: Radar Zones, Aerodrome Related Constraints an Television and Radio Constraints:

The report doesn't consider these elements as absolute constraints; URS agrees with this approach as they are technically solvable, should they be identified during the EIA and/or operational phase.

4.2.2.9 Negative Filter: Archaeological sites

The report doesn't consider these elements as an absolute constraint; URS agrees with this approach as it should be assessed as part of the EIA.

4.2.2.10 Negative Filter: National Trust and Forestry Commission Land

- The report considers National Trust land as an absolute constraint; URS agrees with this approach.
- The report considers Forestry Commission Land as an absolute constraint; there are a number of well documented examples of wind farm projects in Forestry Commission Land and recently Forestry Commission Land and the Wales Government awarded a tender for wind farm projects within Forestry Commission Land. Therefore, URS does not consider this as an absolute constraint.

4.2.2.11 Negative Filter: Agricultural Land

The report doesn't consider this as an absolute constraint; URS agrees with this approach.

4.2.2.12 Positive Filtering

The report takes into account the following elements for positive filtering:

- Land with average wind speed in excess of 6.5 m/s; URS agrees with this aspect, although there is no reference regarding the height of the measurement for this wind speed.
- Road Network; URS agrees with this aspect, although this road network has to be considered not only for the blades, but for the nacelle and the tower of the wind turbines.
- Grid Connection; URS agrees with this aspect, although it is necessary to undertake a detailed analysis since the grid connection is not only limited by distance but by available capacity and cost of upgrades. This aspect has to be considered together with the grid operator on the Isle of Wight.
- Brownfield Sites; URS agrees with this aspect, although neither the report nor URS have identified brownfield sites in the windy areas.

4.2.3 Comments on Site Selection for Wind Turbine Clusters

The report applies a simple mapping in which overlays the following layers:

- Wind speed at 25m above 6.5 m/s;
- Landscape designation areas, including other special protection areas: Historic Parks and Gardens, Important Bird Areas, Green Belts, AONBs, RSPB reserves, RAMSAR sites, SPAs, SACs and SSSIs;
- Electricity Distribution Grid;
- Aviation Constraints; and
- Urban Areas

All these elements are deemed absolute constraints in the site searching.

4.2.3.1 Wind speed

URS considers that this level of wind speed reduces significantly the available area for wind farms. Given the development of today's wind turbines, sites are profitable with wind speeds around 7 m/s at 45m.

4.2.3.2 Landscape Designation

Pursuant to PPS22, URS considers that areas inside AONBs cannot be automatically ruled out and that a detailed assessment should be carried out to analyze possible measures that may make turbines compatible with such areas.

4.2.3.3 Aviation Constraint

URS suggest further consultation with managers of the local civil airports before ruling in areas near such installations.

In accordance to Wind Energy and Aviation Interests - Interim Guidelines, Published by the Working Group for Wind Energy, Defence and Civil Aviation Interests, a proposal 5 miles far form a civil airport but out of an airfield runaway may be acceptable. However any windfarm proposal within 30 km may well receive no objections whilst those a considerable distance from the site may sometimes prove more problematic.

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4.2.3.4 Urban Areas

The report established a minimum distance of 600m from wind turbines to urban areas and 800m to individual farms and dwellings; URS suggest that this should be 800m in both cases.

4.2.3.5 Electricity distribution Grid

The report states that the grid should be capable of accepting distributed generation without significant reinforcement, except in the area west of Newport that is weaker and would require further actions to accommodate additional capacity; URS considers that a consultation with the grid operator is required after the site search.

4.3 Summary on Used Methodology

The methodology used in both reports is appropriate, and technical and environmental aspects for the implementation of wind farm projects have been taken into account.

However, for the 'Draft Scoping Document- Isle of Wight Wind Technology Park', there is a need for updating some of the key aspects for the site filtering and a detailed assessment of the positive aspects. In the 'Site Selection for Wind Turbine Clusters' the site searching is too limited and it rules out any area inside an AONB. As result the number of sites identified is low and location inappropriate (i.e. low wind resource, in deep valleys, slopes etc). In addition, the report bases the site searching on the overlay of the different layers, without assessing the real negative impact of the individual layers.

Given that both reports came to different conclusions while looking for the same outcome and using same inputs, URS suggest it may be appropriate to apply a new methodology for identifying suitable areas.

4.4 Methodology Used by URS

Given that the results from both reports are not encouraging for a clear target of wind power on the Island, URS has considered an alternative approach in the mapping of areas with potential for wind farm projects. The URS methodology uses the best from both reports and applies current best practices for the development of wind farms.

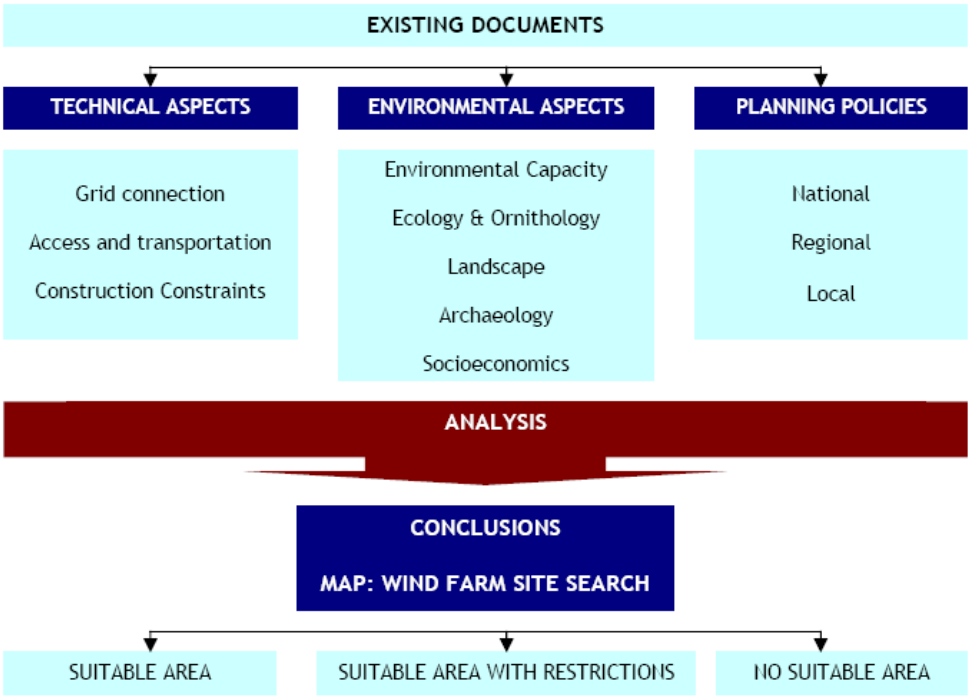

Figure 1: URS Methodology

The methodology includes the analysis of the technical aspects related to wind projects and the environmental setting of the potential site, inline with the methodology of the previous reports. URS also takes into consideration the planning policy framework in the area; the national policy, regional policy and local policy explained in Chapter 3.

Details on the application of the methodology and results are found in Chapter 5, and the search areas shall be identified as follows:

- Suitable Area (SA): Means that the development of a project is viable. Only 3 sites have been identified in this category.
- Suitable Area with Restrictions (SAWR): The development of a wind farm seems viable but there are some constraints in the area, such as the distance to Urban Areas, landscape, technical limitations, the presence of SPAs, SINCs, Local and National Natural Reserves, SACs, RAMSAR sites, and SSSIs in the area, that would require the implementation of preventive/mitigation measures in order to ensure compatibility of wind farm development on the site. 9 sites have been included in this category.
- Non-Suitable Area (NSA): The constraint of the sites eliminates any possibility for the development of a wind farm. From the technically viable sites identified by URS, 8 sites have been included in this category

5. ASSESSMENT OF THE SEARCH AREAS AND DESCRIPTION OF THE SEARCH AREAS ALREADY IDENTIFIED

5.1 Site Selection

5.1.1 Methodology

The Isle of Wight has large areas identified as AONBs, which represent an important limitation for the identification of sites. Previous reports and methodologies assume these areas as an absolute constraint. To avoid rejecting large areas before more in depth assessment, URS has based the site search on positive filtering: Technically feasible sites are identified independent of environmental constraints, and once these sites have been located, a negative filter is applied to identify the main constraints. Once the main constraints have been identified, the feasibility of implementing mitigation measures that could potentially allow the development of the site is assessed.

The rationale of this approach is reinforced by the following:

- **Filtering**: Negative filtering rules out large areas before assessing the root of the problem. In the case of the Isle of Wight, this issue is of great significance, since a large proportion of the Island is designated as an AONB. Using positive filtering identifies areas technically viable for wind turbines (i.e. sites feasible in terms of wind, topography, grid connection and access) and assesses the constraints on site-by-site basis.

- **Policy**: According to PPS 22, Section 12: "*Regional planning bodies and local planning authorities should set out in regional spatial strategies and local development documents the criteria-based policies which set out the circumstances in which particular types and sizes of renewable energy developments will be acceptable in nationally designated areas. Care should be taken to identify the scale of renewable energy developments that may be acceptable in particular areas. Small-scale developments should be permitted within areas such as National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts provided that there is no significant environmental detriment to the area concerned*". Based on this policy, URS has assessed those technically viable sites located within AONB areas and provided likely mitigation measures that could allow the implementation of small-scale wind developments.

5.1.2 Criteria for the Desktop Study

The first step for the site identification is to define the technical criteria the site selection is going to be based upon. For the purposes of this report, the key assumptions are as follows:

- **Wind Turbines**; URS has assumed 2.0 MW wind turbines with 90m rotors. The 2 MW model is the most suitable for the efficient use of the average wind resource in the Island.

- 90 m of rotor it is the latest technology for 2 MW wind turbines.

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- **Wind Speed and Direction**; URS has assumed a minimum acceptable wind speed of 6.5 m/s at 45m (as provided by the BERR- Business Enterprise & Regulatory Reform) and WSW as the prevailing wind direction. A 6.5m/s minimum wind speed will identify areas that are financially feasible, while prevailing wind dictates the layout and distance between turbines.

- **Topography**; High and flat places are desirable for the development of wind farms. URS has considered areas above 50m above sea level. The wind resource increases with the height and in Isle of Wight 50 m would assure the reduction of turbulences generated by topography, the coast , hills and any other significant aspect that could affect the resource.

- **Grid Connection**; URS has assumed that sites should distance less than 5km to the grid. Further consultation with the Grid operator in order to know the connection availability and other requirements derived in each site.

- **Site Size and Turbine Separation**; URS has assumed that the sites should be at least 810 - 1,350m long and 65m wide in order to accommodate 3 to 5 wind turbines. If the site is rectangular, the minimum size should be 900m length and 270m width. These sizes are based on turbine separations of 240-270m between turbines facing the wind perpendicularly, and 400-450m between turbines shadowing the wind. These distances will vary depending on the manufacturer specifications and rotor diameter.

- **Road safety**: A minimum distance of 150m to major roads has been incorporated in the study. It is commonly assumed a buffer zone to roads of 1.5 times the height of the wind turbine is required. In this instance, 150m allows a turbine envelope of up to 100m (e.g. a 60m tower and 45m blade).

- **Urban Areas**: A minimum 800m distance to urban areas has been incorporated into the study.

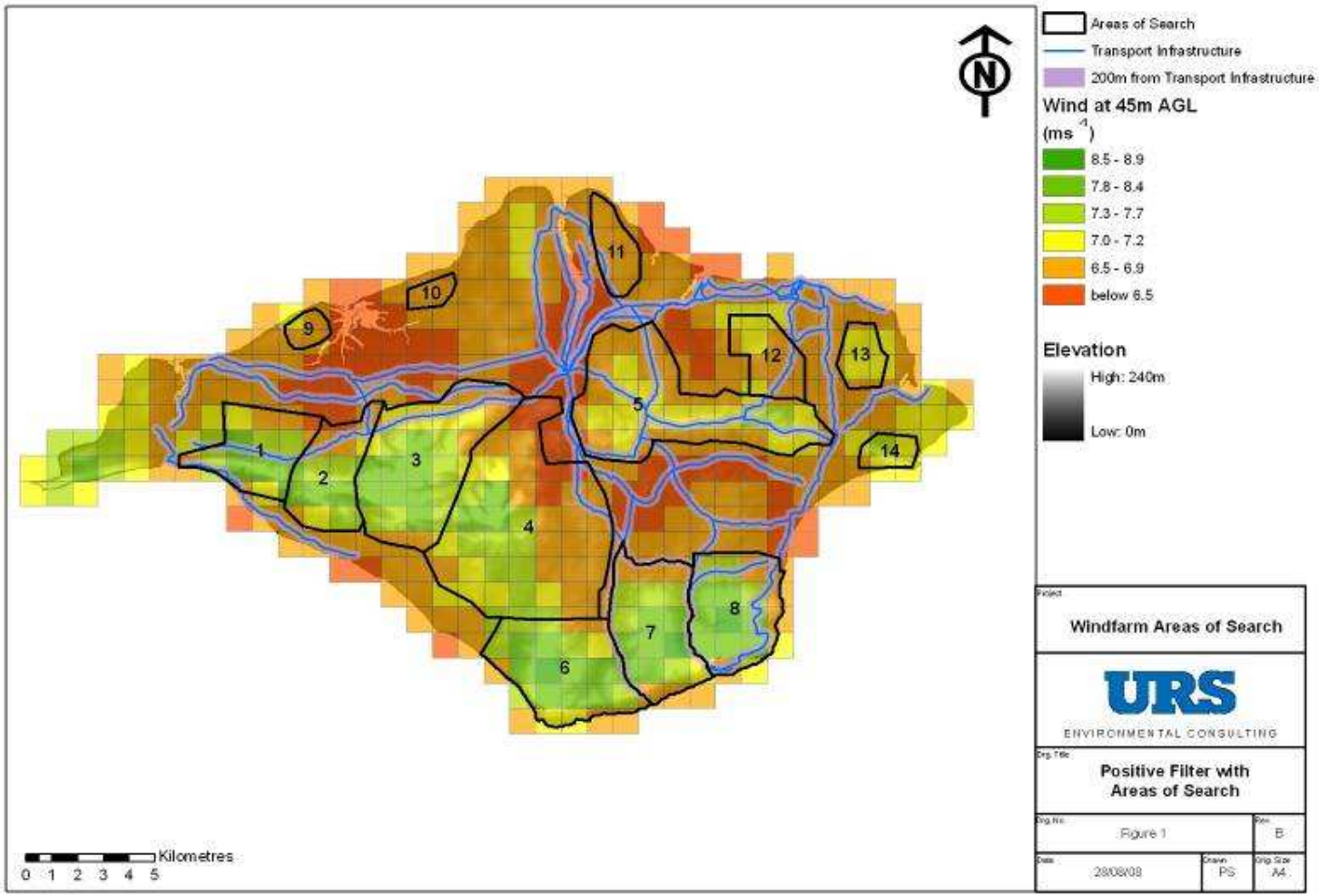
5.1.3 Filtering Process

- **Positive Filtering;** Based on the assumptions above, URS has identified 14 areas of different sizes, holding 20 feasible sites (i.e. some bigger areas held more than one site and some of the smaller areas hold only one site). These areas and sites are identified in Figure 1: Positive Filter with Areas of Search, ahead.

- **Negative Filtering;** Within these 14 areas, relevant constraints have been identified and likely mitigation measures have been identified in order to assess the possible compatibility of wind farm development. The absolute constraints for this negative filtering are: Urban Areas, SPAs, SINCs, Local and National Natural Reserves, SACs, RAMSAR sites, and SSSIs. See Figure 2 Constraints, ahead, showing the researched areas and the constraints areas within them.

5.1.4 Mapping

The next figure, Figure 3: Consolidated sites, shows the result of the filtering process and the sites identified inside each area showed as a red polygon.


Areas of Search
Transport Infrastructure
200m from Transport Infrastructure
Wind at 45m AGL
(ms -1)
8.5 - 8.9
7.8 - 8.4
7.3 - 7.7
7.0 - 7.2
6.5 - 6.9
below 6.5
Elevation
High: 240m
Low: 0m
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Kilometres
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Positive Filter with Areas of Search
Figure 1
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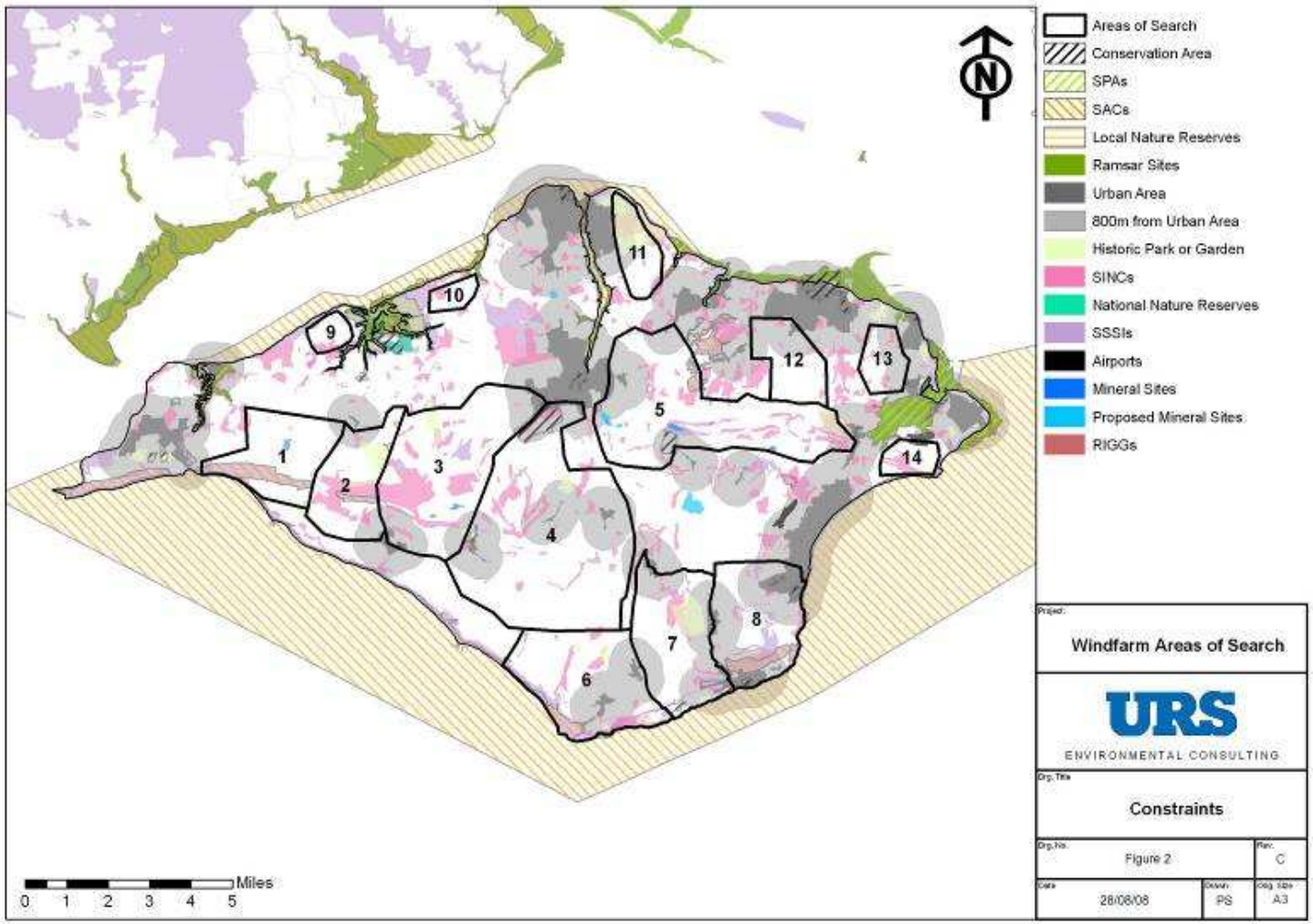
Areas of Search
Conservation Area
SPAs
SACs
Local Nature Reserves
Ramsar Sites
Urban Area
800m from Urban Area
Historic Park or Garden
SINCs
National Nature Reserves
SSSIs
Airports
Mineral Sites
Proposed Mineral Sites
RIGGs
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Miles
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Constraints
Figure 2
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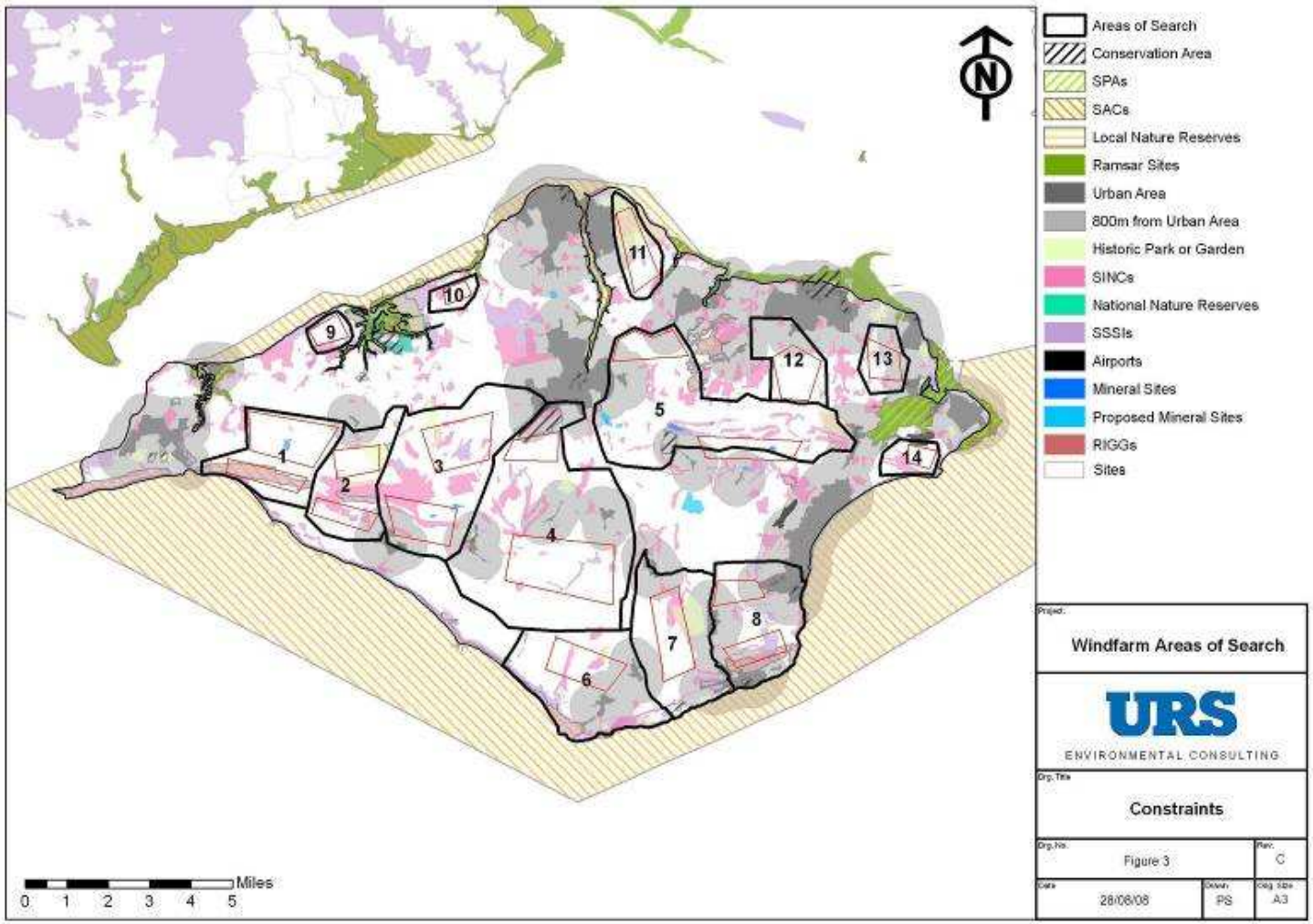
A3


Areas of Search
Conservation Area
SPAs
SACs
Local Nature Reserves
Ramsar Sites
Urban Area
800m from Urban Area
Historic Park or Garden
SINCs
National Nature Reserves
SSSIs
Airports
Mineral Sites
Proposed Mineral Sites
RIGGs
Sites
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Miles
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Constraints
Figure 3
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5.2 Description of URS Assumptions for Site Searching

5.2.1 Grid Connection Availability and Potential Installed Capacity

URS has considered the available information on overhead lines in the assessment of the strategic areas and the selected sites distance less than 5km to the grid.

Although this distance seems appropriate for small-scale development, there are other aspects to be considered when assessing the grid, such as the available capacity on the grid, summer-winter constraints, technical specifications (voltage-ride through) and others.

URS strongly advises further consultation with Scottish and Southern Energy to validate the selected sites. This consultation may lead to smaller developments sharing infrastructure with other developments, such as evacuation electrical lines, substations or grid connections.

5.2.2 Landscape and AONB restrictions

The landscape in the UK is of undoubted value, and any development has to be assessed in this context.

Landscape and visual impacts are among the most far-reaching effects of onshore wind farm developments. They are generally of greatest concern to the public, and are frequently the rationale for opposing wind farm proposals. However, changes to the landscape happen frequently and wind farm developments can be accommodated in the landscape.

Wind farm developments often avoid the most sensitive landscapes, such as National Parks and AONBs. In the case of the Isle of Wight this is not an option since most of the area is designated as an AONB and sites outside the AONB are constrained by the proximity of residential areas and technical feasibility issues (lack of suitable wind speeds). The argument for location of wind farms within the AONB is strengthened by PPS 22 - Section 12's statement that AONB areas are open to renewable energy developments providing that they are carefully designed and that landscape assessments are undertaken to avoid adverse impacts.

Measures such as those detailed below, among others, are considered to minimise the impact of the development:

- Landscape studies and careful project design to minimise the landscape intrusion;
- Project Integration, such as provision of recreation areas around the wind turbines, tourist information panels, etc.;
- Environmental Education Centres, guided visits to discover the site's natural values and environmental benefits of the project; and
- Early public consultations and displays to show the need for renewable and reasons behind the site selection.

5.2.3 Noise

The turbines produce mechanical and aerodynamic noise when operating. This noise could have a negative impact in areas next to the development if no measures are taken. Therefore, a buffer zone of 800m to urban areas has been considered in the site search to avoid disruption to residents. This buffer zone could vary based on final turbine specifications and areas surrounding the site.

Outside this buffer zone, noise levels will typically be below 30dbA (Leq), though an on-site noise measurement campaign should be carried out as part of the EIA accompanying planning applications for wind farm development.

5.2.4 Traffic Management and Transportation

Wind turbines are made of large and heavy materials that have to be shipped from the harbour to the sites through the existing road network. Therefore, the specifications of the road network become a technical requirement for the feasibility of the site (i.e. min width, max slope, bends and turning points, etc)

Although main roads on Isle of Wight are appropriate for the transportation of the different wind turbine sections (towers, nacelle and blades), some infrastructure upgrades and temporary traffic management will be required during the construction phase of any wind farm development. The traffic management measures required will depend on site location and infrastructure upgrades will depend not only on site location but on manufacturer specifications and turbine selection.

The key elements in the wind turbine transport are:

- **Weight**: the nacelle is the heaviest part of the wind turbine, with weights around 60-70tn (for a 2.0MW WTG). Roads and bridges along the route should be surveyed to check route feasibility;
- **Height**: the lower section of the tower is the tallest part of the wind turbine with around 4m, giving a total height of approx. 5.5m including the trailer height. Height restriction along the route should be considered;
- **Slope**: To ensure safe transportation of the wind turbine parts, a maximum road slope of 7% should be considered, though for short distances (less than 500m) slope could of up to 12% is considered acceptable; and
- **Bends**: Blade transport is very sensitive to tight road bends (2.0MW turbine has a blade length ranging from 35-45m). Blades are long and rigid structures and manufacturers provide prescriptive specifications in terms of minimum width of the bends, the free area around them and turning points.

The initial desktop survey on the Isle of Wight shows that there are no specific topographic issues or major obstacles to turbine transport. URS recommends that a transport feasibility, route and site access survey is carried out as part of the EIA phase for each of the selected sites.

5.2.5 Water Resources and Flood Risk

There is a potential risk of impacts to water resources during the construction and operation of wind farms, in the form of water pollution and interruption of water flows.

To prevent negative impact, the identification of the sensitive water resources and water flows in Isle of Wight for each particular site is essential. URS recommends the analysis of this potential impact during the EIA phase of each project and the implementation of preventive and/or mitigation measures where appropriate.

5.2.6 Archaeology and Heritage

The main Archaeology and the Built Heritage sites identified in the GIS provided by the Isle of Wight Council have been considered during the site search process and labelled as an absolute constraint. However, URS recommends that a site-specific review is carried out during the EIA phase to assure no impact on any archaeological feature.

5.3 Assessment of previously identified search areas

5.3.1 Assessment of site selection by Aerolaminates Ltd.

Six sites were initially identified in the report "Briefing Note-Isle of Wight Wind Technology Park by Aerolaminates Ltd". The sites and rationale are described in the table below:

	LOCATION	
Site 1	Land North of Niton and West of Whitwell	Not suitable: close to AONB and to two settlements.
Site 2	Land West of Wroxall	Not suitable: small area, in a slope, no wind resource.
Site 3	Land South of Freshwater	Not suitable: Small site, close to residential development.
Site 4	Land North of Freshwater	Not suitable: Small site, area only available for 2 wind turbines.
Site 5	Land of Afton	Not suitable: Site close to residences
Site 6	**Land South West of Bembridge**	Not suitable: Presence of the aerodrome and surrounded by AONB

The report states that none of these sites is suitable for the installation of wind turbines mainly due to minimal space, distance to residential areas and location within the AONB.

URS agrees with the general conclusion (i.e. none of the sites is suitable for wind farms) but primarily due to the lack of space for a small-medium scale wind farm project.

Due to the lack of feasible sites identified in its initial assessment, Aerolaminates Ltd opted to perform a second sieve with the identification of further five potential areas capable of 5 wind turbines of 2 MW. These further areas were identified by on site visits to different parts of the Island. These sites are as follows:

	LOCATION	
Site 7	West Wight	Suitable for the development. (6WTx2MW)
Site 8	Bleak Down	Suitable for the development (6WTx2MW), but within the AONB.
Site 9	Land North of Military Road	Not suitable: Within AONB and Heritage coast area and too small for the development.
Site 10	Bowcombe down/Rowridge	Suitable for the development since technical perspective but within AONB.
Site 11	**Brightstone Forest**	Not suitable: Doubt of viability because grid connectivity and space for the development.

The report concludes that, out of these 5 areas, only 3 of them seem feasible for wind farms. These areas are: Site 7 West Wight, Site 8 Bleak Down and Site 10 Bowcombe down/Rowridge.

URS agrees with this conclusion. Sites 7, 8 and 10 identified by Aerolaminates Ltd have been also identified by URS.

5.3.2 Site selection by Whitbybird

Three sites were identified in the report "Isle of Wight- Site selection for wind turbine clusters by Whitbybird". The sites and rationale are described in the table below:

	LOCATION	
Site A	St Helens.	Potentially good wind speed. Close to dwellings and residences
Site B	Arreton Valley	Potentially good wind speed. Close to dwellings and residences
Site C	**St George Down**	Small scale development. Close to Newport.

The report concludes that, although these areas are feasible, there are also significant constraints mainly due to proximity to residential areas and AONBs.

As explained further in this chapter, the sites A and B identified by Whitbybird have been also identified by URS, with restrictions. Site C is considered as unfeasible by URS due to unsuitable topography (located on a slope), which will be affected by turbulances and a resource reduction..

The Figure 4, identifies the search sites described in the reports prepared by Aerolaminates Ltd, and Withbybird, as well as the areas identified by URS, with the AONB areas and other constrains.


Identified Sites (WhitbyBird)
Preferred
Less Suitable
Identified Sites (AeroLaminates)
Preferred
Less Suitable
URS Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
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12
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14
Kilometres
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
AeroLaminates & WhitbyBird
Areas with AONB & Constraints
Figure 4
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5.3.3 Site selection by URS

URS has considered the best of both methodologies and positive and negative filtering for the site search (see Chapter 4 for details). URS has produced the next map, Figure 5 Consolidates sites showing results from the search and identified areas.

These areas are described as follows.


Consolidated Sites
Suitable
Suitable, with Restrictions
Unsuitable
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGIGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
1
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14
Kilometres
0 1 2 3 4 5
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Consolidated Sites
Figure 5
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28/08/08
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5.3.3.1 AREA 1: Wellow- Shalcombe

The area is located at both sides of Newport road (B3399) at the East of Freshwater and West of Shalcombe.

This open area has wind speed averaging 7m/s to 8m/s and enough space for 6 wind turbines at the North of Newtown road and 3 at the South. The site is located in a flat area, with an elevation of 80m, and has a regular shape.

The distance to the grid is around 1km. URS suggests undertaking formal consultation with the electricity company to determine the connection availability in the area.

Inside this area, two suitable sites have been identified: South Wellow and South Shalcombe.

- The South Wellow site goes from South Thorley to South Wellow and represents agricultural land with very good access; The B3401 is located to the North of the site. There are some residences within the site but the design of a 5 to 6 wind turbines wind farm seems feasible, keeping to the referenced distances.

  There are no significant restrictions on this site but more detailed assessment would be required in the EIA submitted to support any planning application for wind farm development on the site.

  This site coincides with the Site 7 identified by Aerolaminates Ltd.

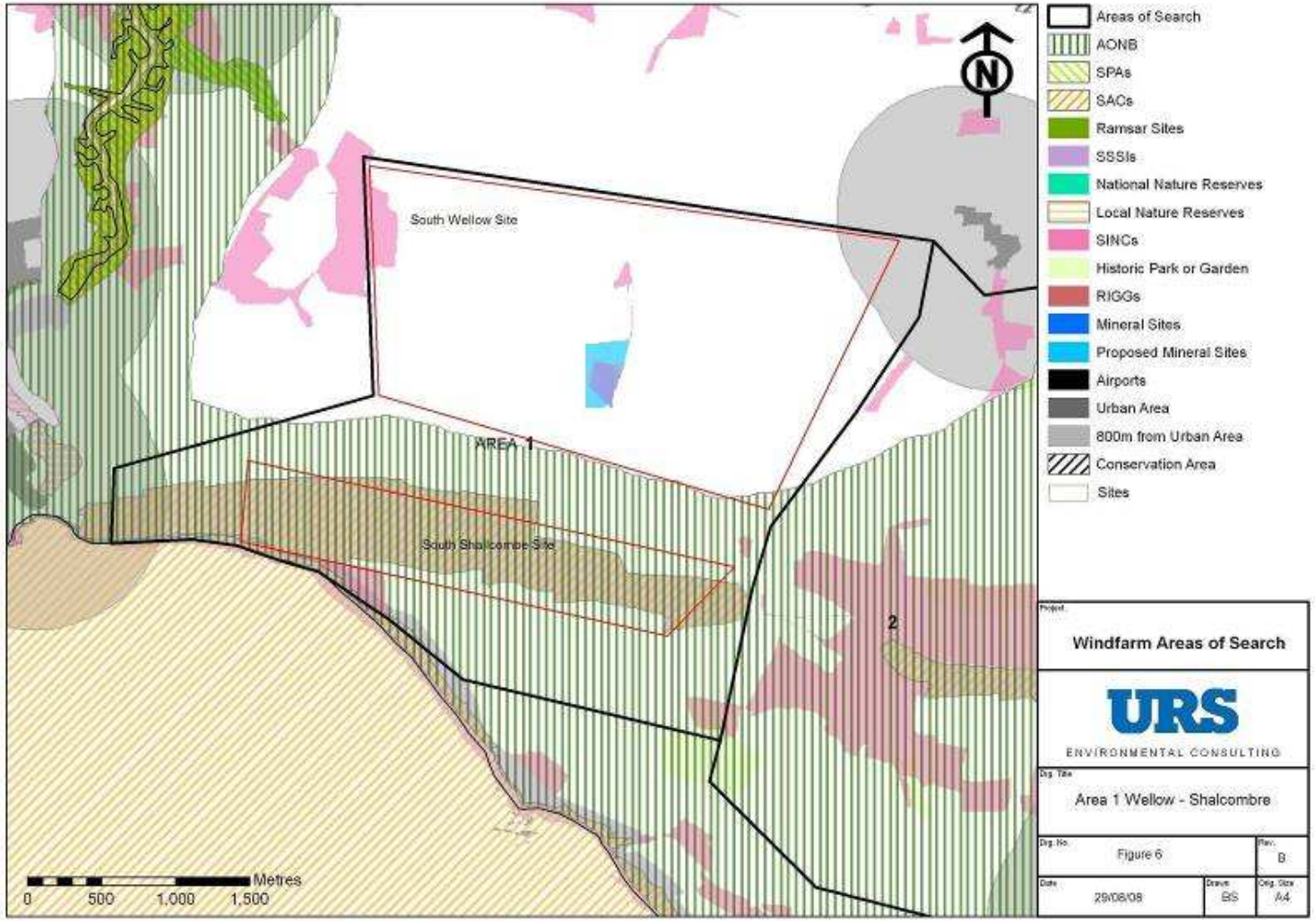
- The site at South Shalcombe has high wind potential but the proximity to the coast, landscape value and location within a SSSI and a SAC makes this site Not Suitable, as suitable mitigation measures to ensure the preservation of the natural value of this particular site would not be possible.

Conclusion:

The South Wellow site within Area 1 represents a Suitable Area on the Isle of Wight for both community and commercial development, with capacity for 10 to 12 MW.

The South Shalcombe site within Area 1 is Not Suitable for wind farm development.

Figure 6 shows the Area 1 and the sites South Wellow Site and South Shalcombe Site within,


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
South Wellow Site
AREA 1
South Shalcombe Site
2
N
Metres
0
500
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 1 Wellow - Shalcombre
Figure 6
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5.3.3.2 AREA 2: Chessell

The area is located in the area named Chessell, to the South of the (B3041) and at the East and North of the B3399.

- The Northern site of Chessell, is an open area with wind speeds between 7m/s and 8m/s, but the area available could only hold 3 wind turbines.

  The distance to the grid is approximately 2 to 3 km. URS suggests undertaking formal consultation with the electricity company to identify the possibility for connections in the area.

  There are some environmental constraints at this specific site, owed to the proximity of SINCs, SSSI and Historic Park/Garden, and due to the fact that the site is within the AONB. Despite these restrictions, URS considers the area as a Suitable Area with Restrictions, and some preventive and mitigation measures should be considered if wind farm development were to be considered on the site.

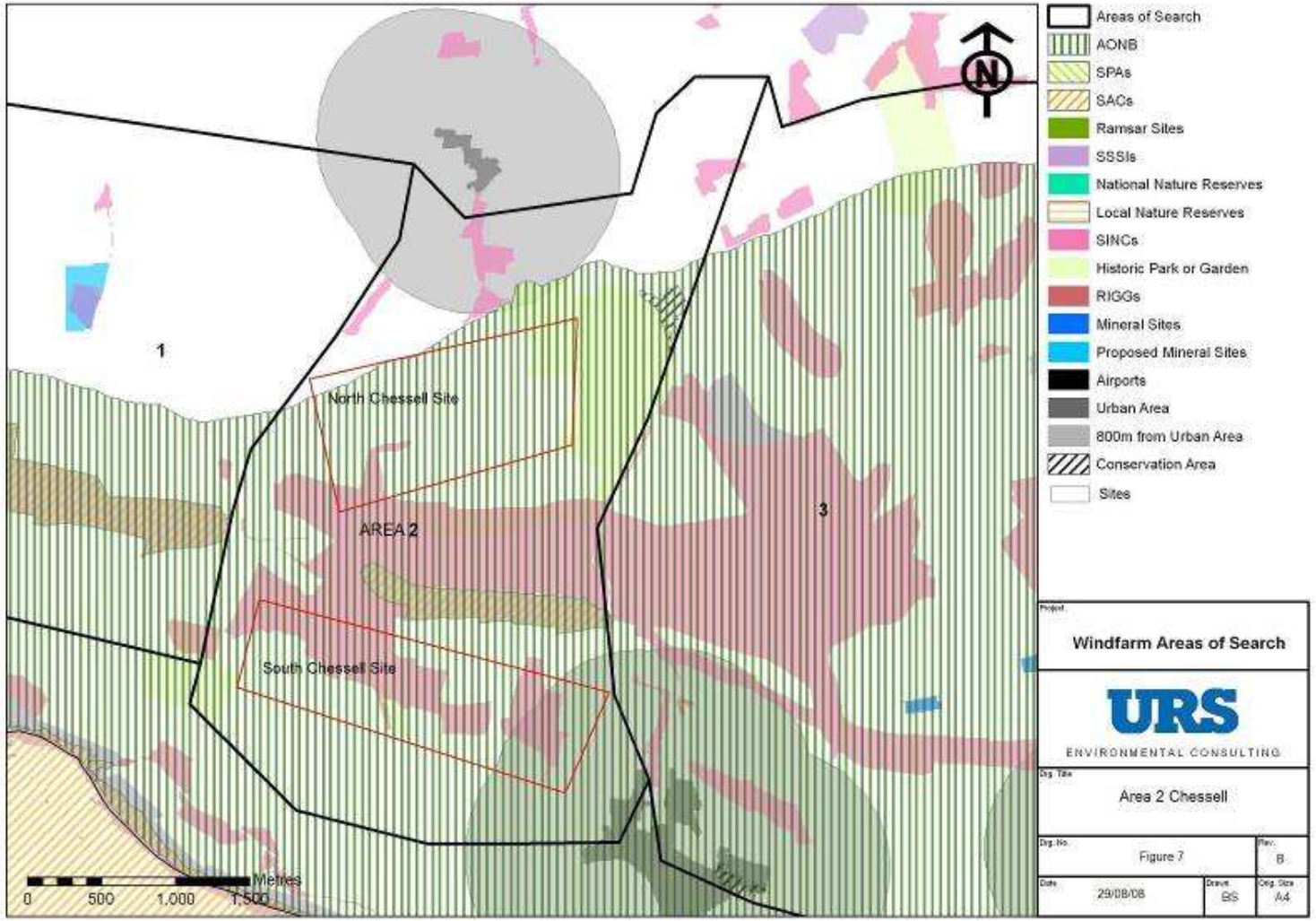
- The Southern site identified in Chessell has an area with high wind potential for the installation of 5 wind turbines. Although the area is technically feasible, the environmental constraints make the area Not-Suitable.

Conclusion:

The North Chessell site within Area 2, is a Suitable Area with Restrictions, appropriate for community wind schemes with a capacity of 4 to 6MW. Appropriate preventive and mitigation measures should be applied.

The South Chessell site within Area 2 is Not-Suitable.

Figure 7 shows the Area 2 and the sites North Chessell Site and South Chessell Site within.


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
1
North Chessell Site
AREA 2
3
South Chessell Site
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1,000
1,500
Metres
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 2 Chessell
Figure 7
B
29/08/08
BS
A4

5.3.3.3 AREA3: Rowridge - Cheverton

The area is located between Rowridge, Brighstone and Shorwell, inside the polygon defined by the following roads: the B3041 by the North, the B3399 by the South, Lynch lane by the West and B3323 by the East.

The area has wind speeds of 8.5m/s to 9.5m/s and enough space for 6 wind turbines. The area is flat area with a soft elevation up to 200 m.

Inside this area we can differentiate two sites: Northern site (Rowridge) and Southern site (Cheverton).

- The Rowridge site is mainly composed of agricultural land with good access. It coincides with area 10 Bowcombe Down/Rowridge proposed by Aerolaminates ltd. It is a Technically Feasible area for a wind development of 3 to 5 wind turbines.

  Inside the area, some constraints (SSSI, SINC, Historic Park/Garden) have been identified, which should be considered during the wind farm design.

- The South site, located within the Area 3, Cheverton Site, is another area appropriate for the implementation of wind turbines. Although it is inside an AONB, in 2002, a 3-wind turbines project was granted planning consent (total capacity of 1.8MW). The project has not been constructed and latest technology would raise output capacity to 4 - 6MW.

Both sites are included in AONB areas, which will require appropriate mitigation measures.

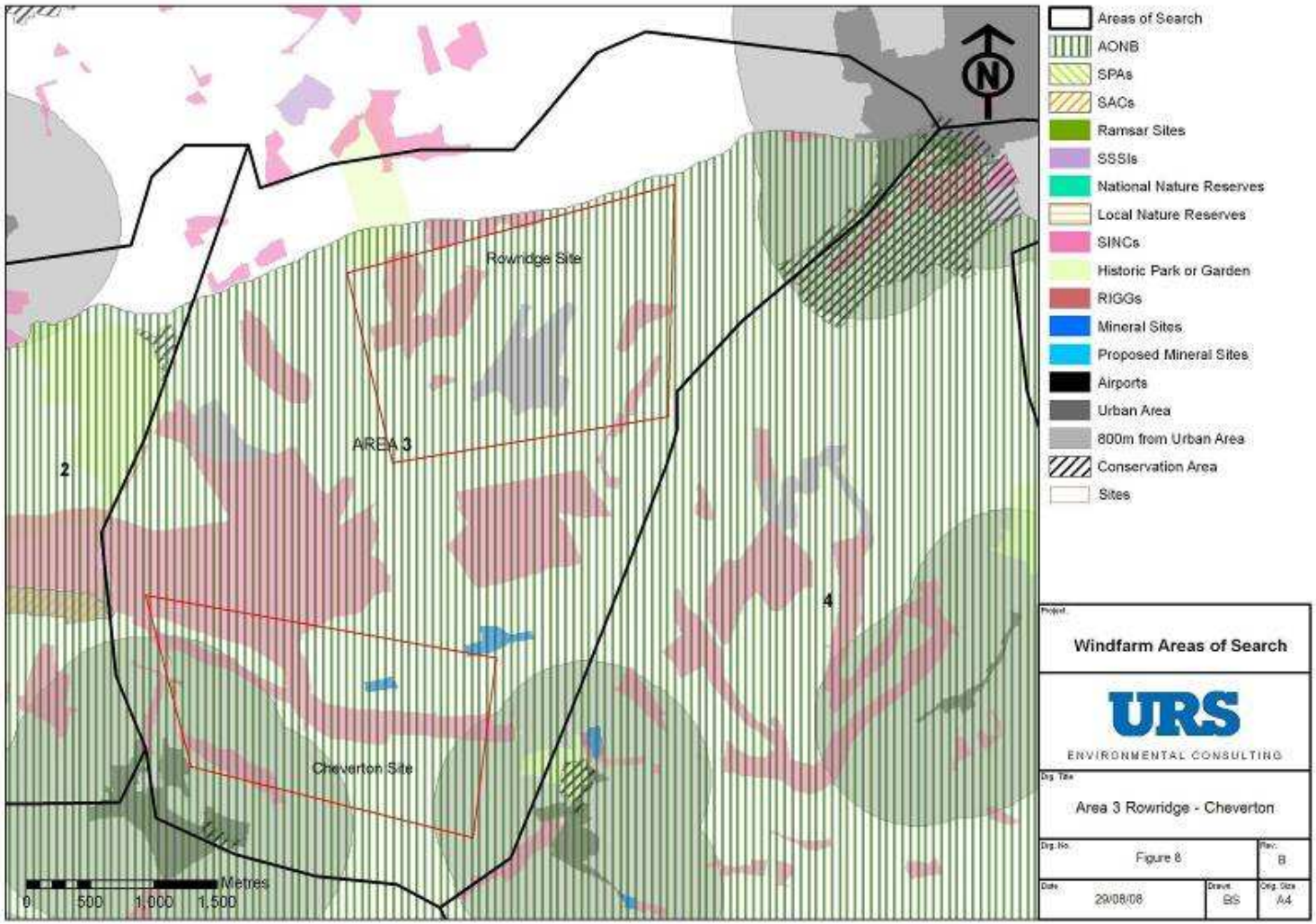
The distance to the grid is 2 - 3km for the Rowridge site and 4 - 5km for the Cheverton site. URS suggest undertaking formal consultation with the electricity company to identify the possibility of connection for both sites.

Conclusion:

The Rowridge site, within Area 3, is a Suitable Area with Restrictions. It is suitable for community and commercial development and could accommodate a capacity of 6 - 10 MW. It will require appropriate preventive and mitigation measures.

The Cheverton site, within Area 3, is a Suitable Area with Restrictions. It is suitable for community schemes and could accommodate a capacity of up to 6 MW. It will require appropriate preventive and mitigation measures.

Figure 8 shows the Area 3 and the sites Rowridge Site and Cheverton Site within.


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
Rowridge Site
AREA 3
2
4
Cheverton Site
Metres
0
500
1,000
1,500
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 3 Rowridge - Cheverton
Figure 8
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29/08/08
BS
A4

5.3.3.4 OTHER CONSIDERATIONS FOR AREA 2 AND AREA 3

The presence of the forest extended from Area 2 to Area 3 is of note as it could be a positive feature for wind developments. The developer could use existing trucks, and site layout benefit of favorable topography -mainly flat. The resource will be affected by the trees (reducing speed) but this effect could be mitigated by higher towers and careful layout design.

There are already experiences of wind farm implementation inside Forestry Commission Land (FCL) but further consultation with FCL should be carried out.

This area coincides partially with Site 11 “Brightstone Forest” identified by Aerolaminates Ltd. The area had planning consent for 3 wind turbines of 300 kW each. Though there is no official explanation, it seems feasible that the project did not progress because of the distance from grid, poor access and wind turbulence.

5.3.3.5 AREA 4: South Newport

The area is located to the South of Newport and the East of the B3323.

This open area has wind speeds of 7.5m/s to 8.5m/s, providing enough space for 6 wind turbines and has a regular and flat shape.

The area is split in two: The Northern area between Bowcombe and Gatcombe, and the Southern area located between Shorwell (Kingston) and Godshill.

- The Bowcombe-Gatcombe site, located at the central-South area of the Island near Bowcombe, is well exposed to the wind with roads and rural tracks also easily accessible.

  There are many buildings in the area, which reduces the overall available area. The development could hold 2 - 3 wind turbines, approximately 4 – 6MW of installed capacity.

  There is a Conservation Area to the North, which should be considered during the design phase of the development to avoid negative impact. The site is located within an AONB, which would require mitigation measures during development, as explained in Chapter 6.

- Area 4 Kingston-Godshill, is located at the South of Newport, between the areas of Shorwell (Kingston) and Godshill.

  This is an open site, well exposed and that it could accommodate 5 - 6 wind turbines.

  The site is inside an AONB and further mitigation measures should be considered.

  The distance to the grid is around 4 - 5km. URS suggests undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

  This area is near to Site 8 proposed by Aerolaminates Ltd (Site 8 “Bleak Down”).

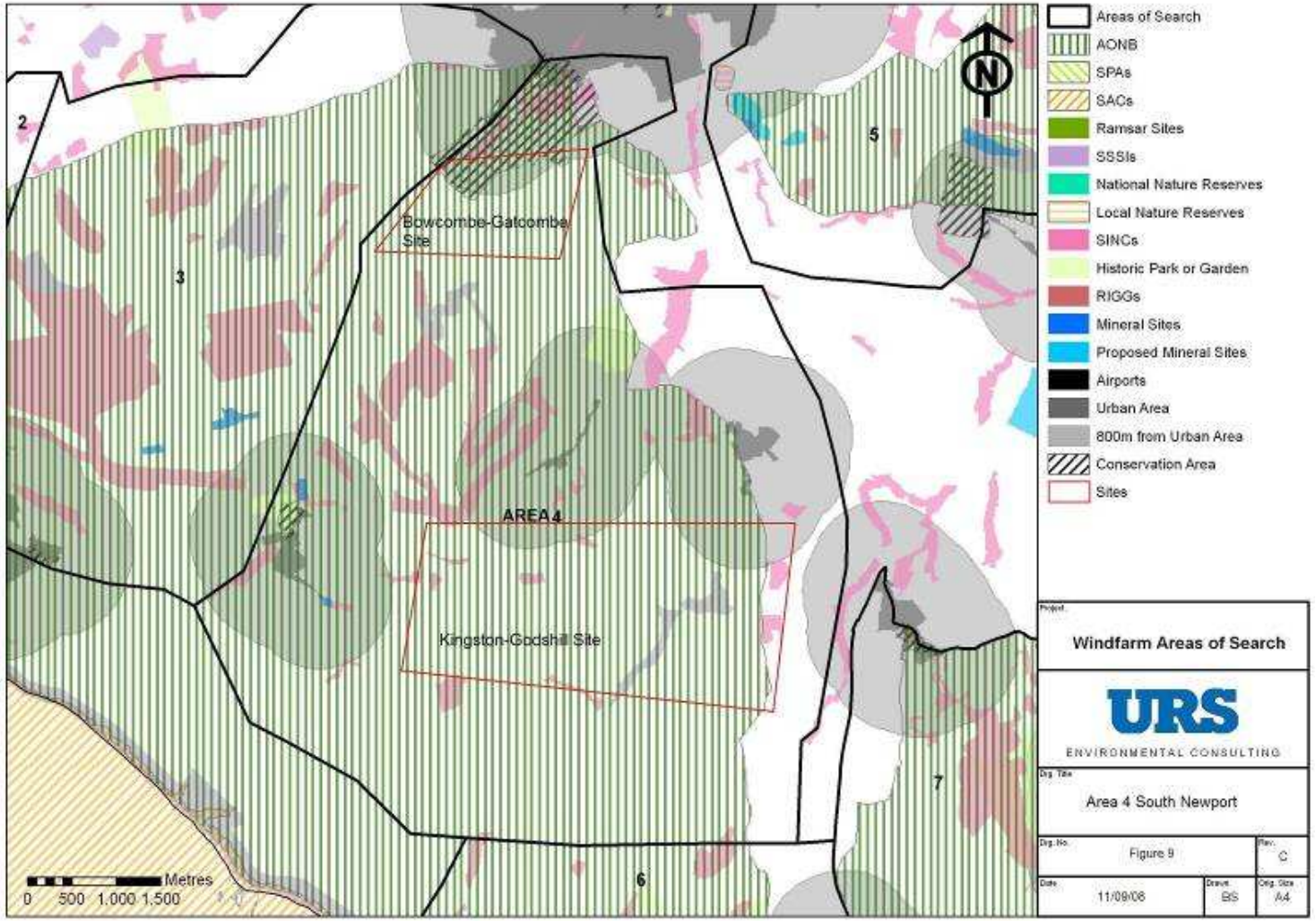
  The area could be developed for community or commercial development.

Conclusion:

The Bowcombe site, within Area 4 is a Suitable Area with Restrictions, which would require preventive and mitigation measures. It could accommodate 4 - 6MW and is appropriate for community wind development.

The Kingston-Godshill site within Area 4 is a Suitable Area with Restrictions, which would require preventive and mitigation measures. It could accommodate up to 12MW and is appropriate for community and commercial development.

Figure 9 shows the Area 4 and the sites Bowcombe- Gatcombe Site and Kingston- Godshill Site within.


2
3
5
6
7
Bowcombe-Gatcombe Site
AREA 4
Kingston-Goodshill Site
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
Metres
0 500 1,000 1,500
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 4 South Newport
Figure 9
C
11/09/08
BS
A4

5.3.3.6 AREA 5: East Newport

The area is located at the East of Newport and goes from Havenstreet to Brading, leaving Upton at the North and Adgestone at the South.

Inside this area two sites have been identified. The site Havenstreet at the North of the area and the site Arreton is located between Arreton and Brading.

- The site Havenstreet is an open, regular and flat area with wind speeds of 7m/s to 8m/s. Land use is primarily agriculture with few quarries.

  Given the residential areas surrounding the site and the presence of the SINC the design of a wind farm will be difficult. Even so, the area could technically accommodate 2 - 3 wind turbines.

  The area has several lines crossing it and grid connection should not represent a constraint. However, URS suggests formal consultation with the electricity company to determine the possibility of connection in the area.

- The site Arreton is located on top of a soft elevation (between 50 to 80 m) and has regular shape. Land use is primarily agriculture and industrial.

The average wind speeds is 7m/s to 8m/s and the site has very good accesses, with several roads and rural tracks passing by.

33kV-lines cross the area and grid connectivity should not represent a difficulty. URS recommends though the submission of a formal consultation to the electricity company to know the possibility of connection in the area.

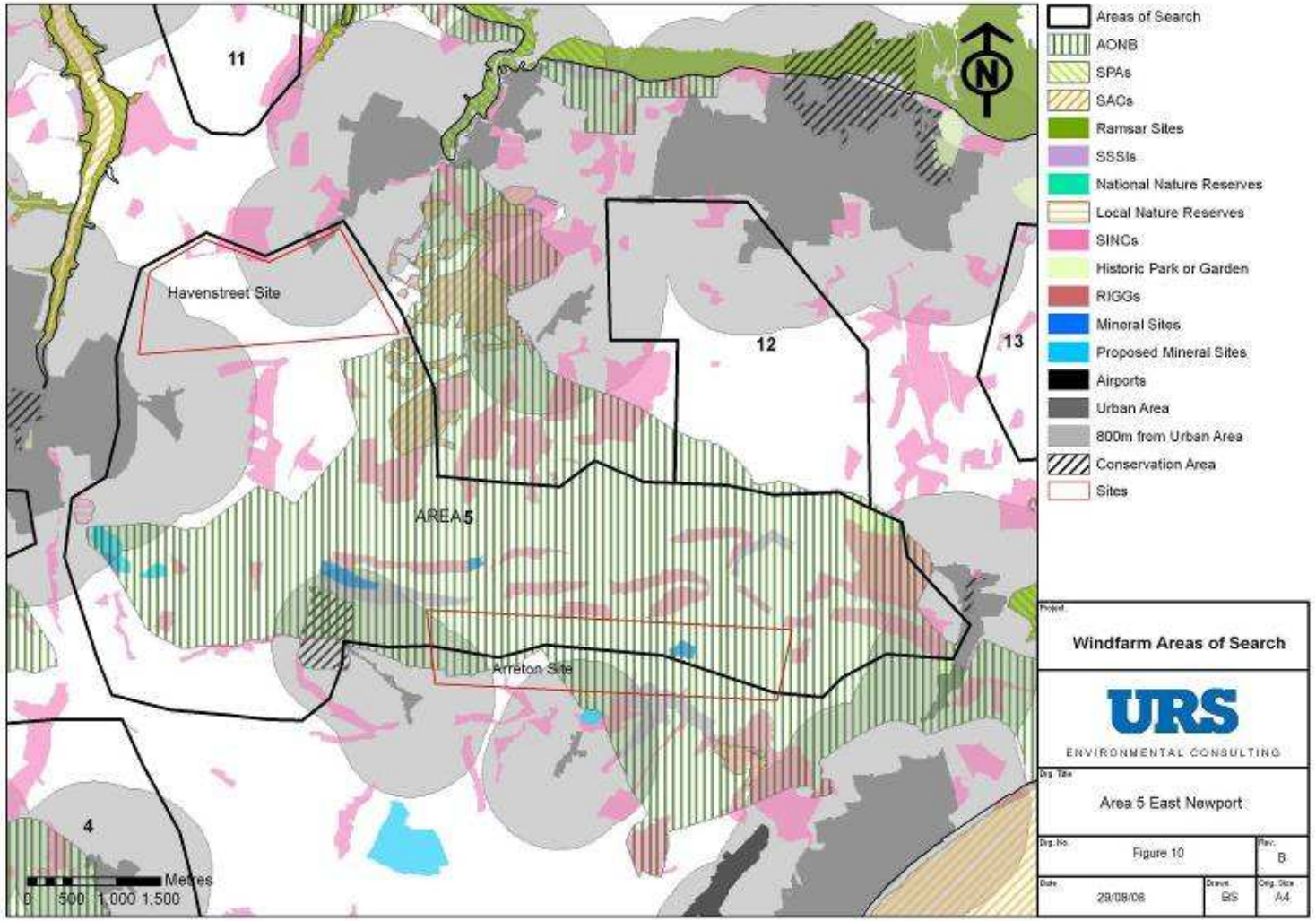
The site is technically suitable, but existing farms and rural developments make turbine location difficult.

Conclusion:

Area 5, Site Havenstreet represents a Suitable Area, appropriated for community interest and that it could accommodate 4 - 6MW

Area 5, Site Arreton represents a Suitable Area with Restrictions, which will require preventive and mitigations measures. The site is appropriated for community and commercial development and could hold 8 - 12MW of capacity.

Figure 10 shows the Area 5 and the sites Havenstreet Site and Arreton Site within.


11
12
13
4
AREA 5
Havenstreet Site
Arreton Site
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
Metres
0 500 1,000 1,500
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 5 East Newport
Figure 10
B
29/08/08
BS
A4

5.3.3.7 Area 6: Niton

The area is located near the village of Niton, at the South of the Isle of Wight.

This open area has wind speeds between 7m/s to 8.5m/s and it is a regular and flat area with soft elevation up to 200 m at the North of Blackgang, facing prevailing wind on the Isle of Wight. The site runs in parallel to road B3399, but there is not enough space for more than 3 wind turbines.

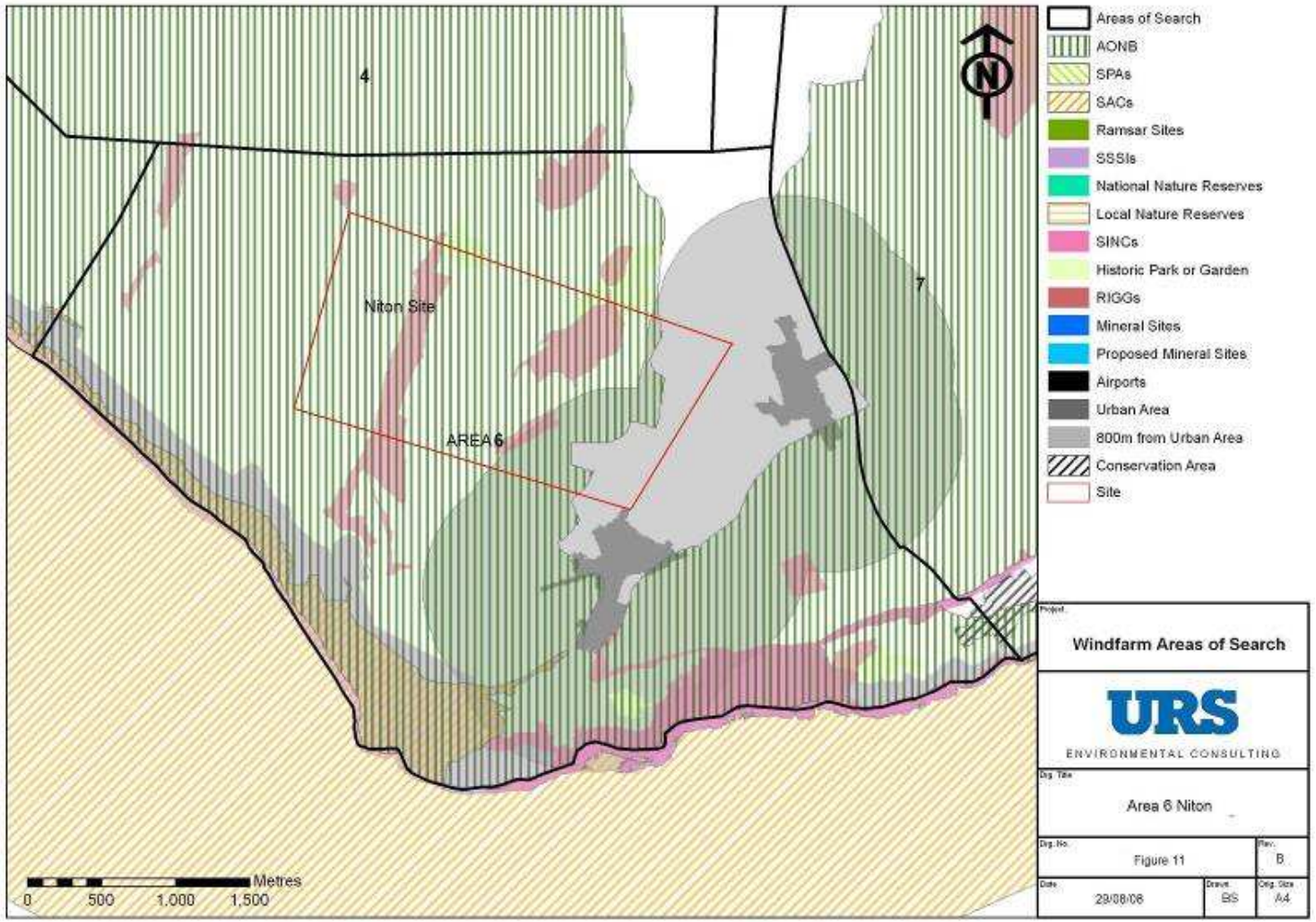
Furthermore, the landscape and proximity to the coast represents a potential constraint for the development of the project, which together with the distance to the grid (approximately 10km), presents significant difficulties.

This area is near Site 1 identified by Aerolaminates Ltd. That site was located in a valley outside an AONB but in a low wind resource area near residences. The Aerolaminates site could only hold up to 2 wind turbines.

Conclusion:

Area 6, Site Niton is an area with technical and environmental constraints considered as Not-Suitable.

Figure 11 shows the Area 6 and the Niton Site within.


4
7
Niton Site
AREA 6
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Metres
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Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 6 Niton
Figure 11
B
29/08/08
BS
A4

5.3.3.8 AREA 7: West Wroxall

The area is limited at the North by the road B3020, at the South by the road A3055 at the West by Roud and at the East by the road B3327. The area is flat with a soft and longitudinal elevation up to 200m.

The land use is primarily agriculture.

The wind speed is 7m/s to 8.5m/s and there are some places inside the area with capacity for 4 - 5 wind turbines, holding 8 to 10MW of capacity.

This area is near the Site 2 “West Wroxall”, which it was deemed unfeasible because the lack of space and topography (located in a slope).

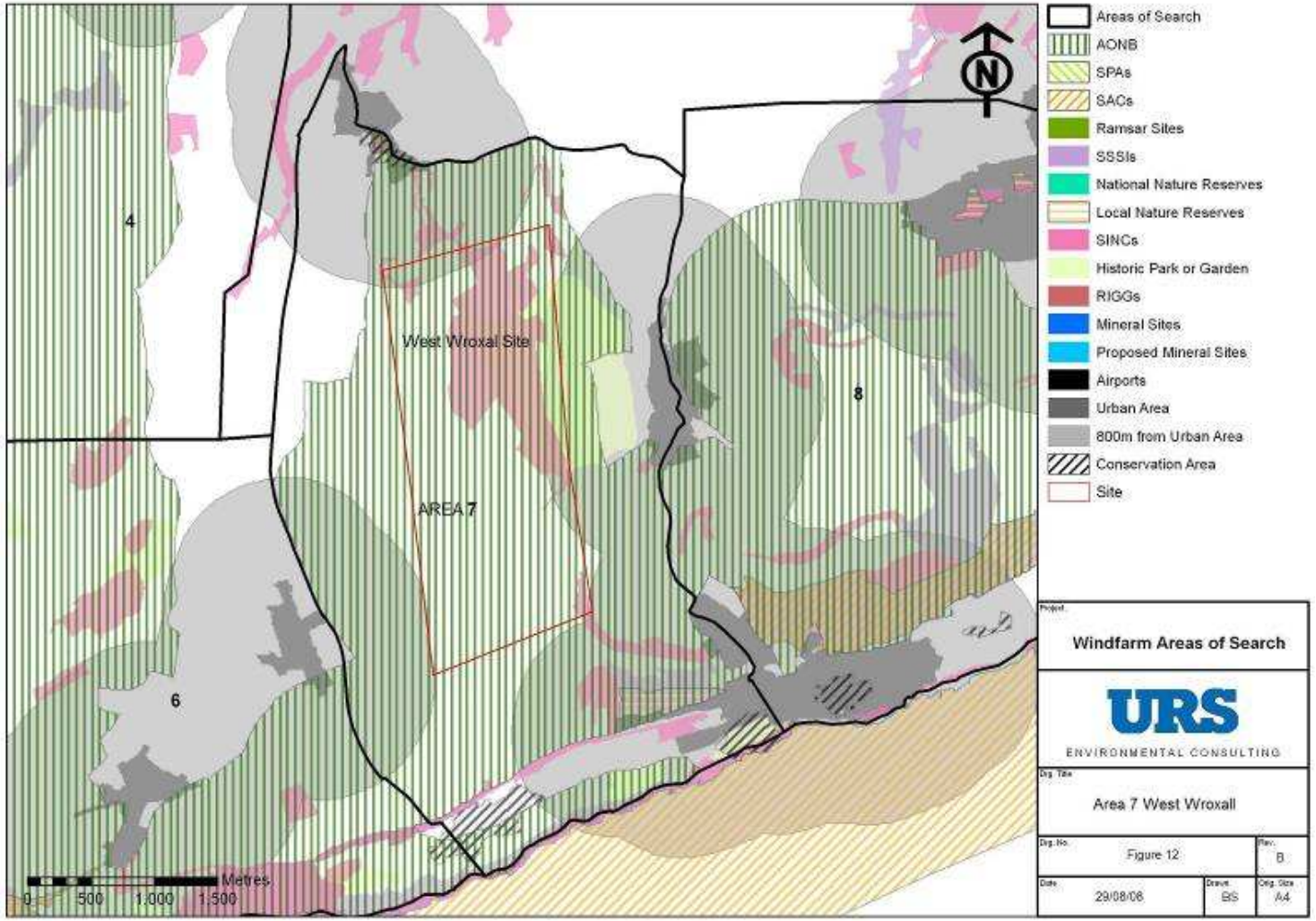
The area is inside of an AONB and close to SINC and Historic Park/Garden.

The distance to the grid is 3 to 4km. URS recommends formal consultation with the electricity company to determine the availability of the grid in the area.

Conclusion:

Area 7, Site West Wroxall is considered as Suitable Area with Restrictions, which will require preventive and mitigations measures, appropriated for community or commercial development. The site could hold 8 to 10MW.

Next Figure 12 shows the Area 7 and West Wroxall Site within.


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
N
West Wroxal Site
AREA 7
4
6
8
Metres
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1,500
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 7 West Wroxall
Figure 12
B
29/08/08
BS
A4

5.3.3.9 AREA 8: East Wroxall

The area is located in the South East of the Isle of Wight, in the polygon defined by the B3327 to the West, the B3020 at the North, the A3055 to the South and the road A3055 at the South and at the East. The area has regular and flat shape, and has a gentle slope up to 200 m

This area has wind speeds of 7m/s to 8m/s and enough space for 6 wind turbines.

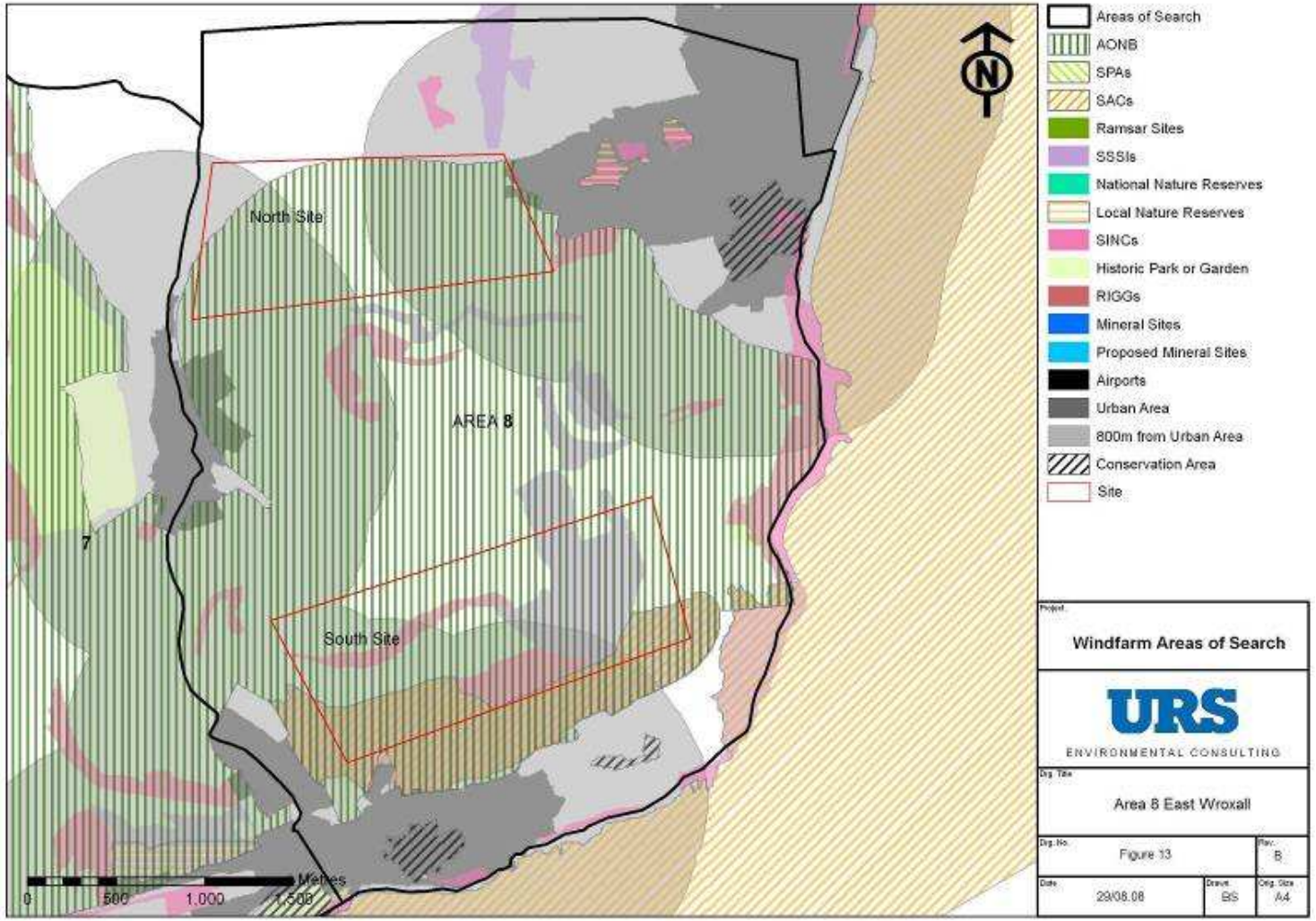
Residential areas surrounding the site make turbine location complex. Despite this, there is a site at to the North of this area that could hold 4 to 6 wind turbines, a total capacity of 8 to 12MW.

The approximate distance to the grid is less than 3 km. URS recommends undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

Conclusion:

The East Wroxall North site, within Area 8 is considered a Suitable Area with Restrictions, which will require preventive and mitigation measures. The site is appropriate for community or commercial development and could hold 8 to 12MW of capacity.

Figure 13 shows the Area 8, and the sites North East Wroxall Site and South East Wroxall Site within.


North Site
AREA 8
7
South Site
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500
1,000
1,500
Metres
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 8 East Wroxall
Figure 13
B
29/08.08
BS
A4

5.3.3.10 AREA 9: East of Cranmore

The area is located at the East of Cranmore and at West of Newtown. It is a small area, but has all the technical requirements to allow the implementation of a small-scale wind farm of 2 to 3 wind turbines.

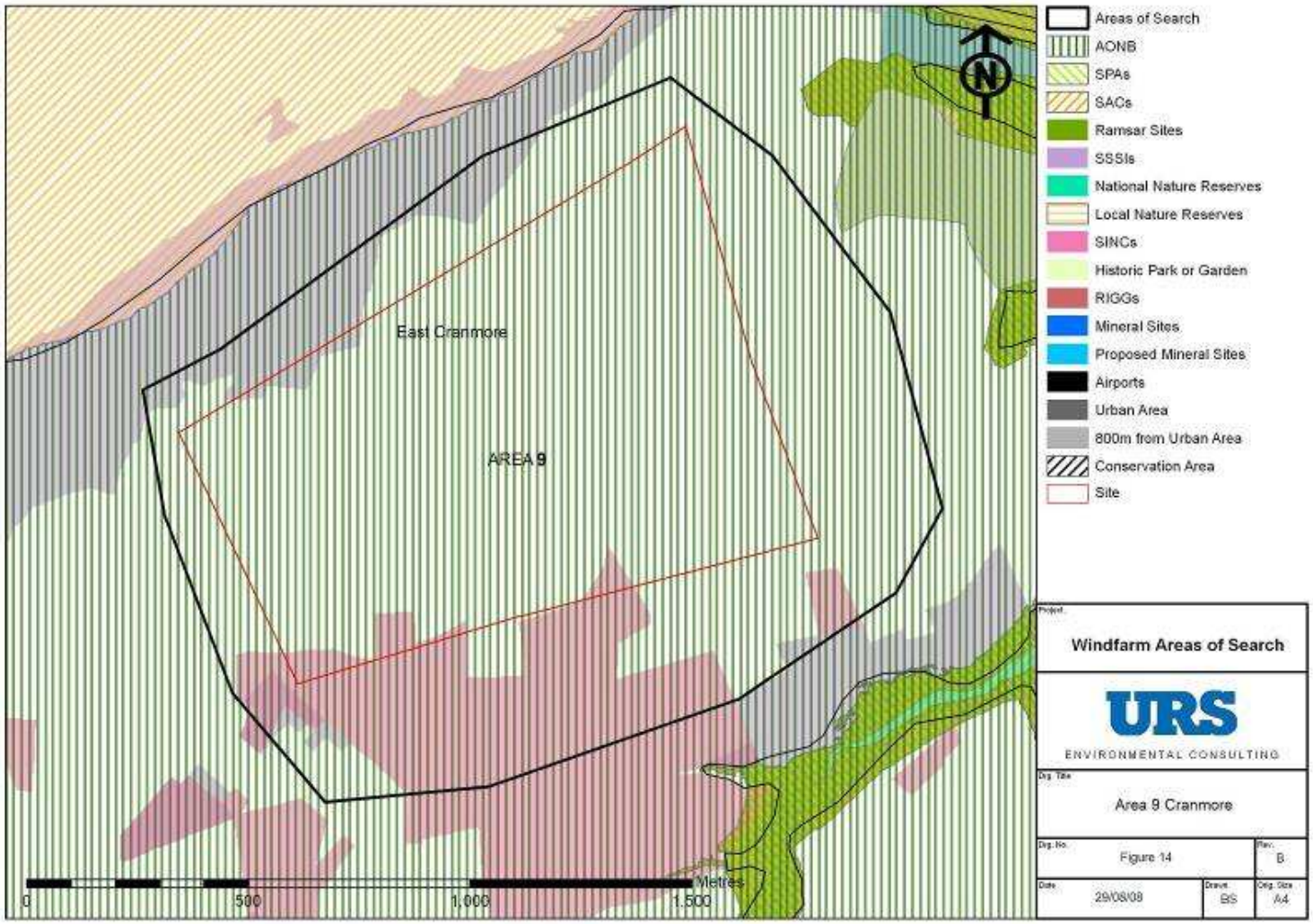
The average wind speed is 6.5m/s to 7m/s and it has a regular and flat area, with gentle slope.

Distance to the grid is approximately 1km. URS recommends formal consultation with the electricity company to determine the possibility of connection in the area. The presence of an AONB and the residential areas somewhat constrain the possibility for development.

Conclusion:

The East of Cranmore within Area 9 is considered a Suitable Area with Restrictions, which will require preventive and mitigations measures. The site is appropriate for community schemes and could hold 4 to 6MW of capacity.

Next Figure 14 shows the Area 9, and Cranmore Site within.


East Cranmore
AREA 9
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500
1,000
1,500
Metres
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 9 Cranmore
Figure 14
B
29/08/08
BS
A4

5.3.3.11 AREA 10: East Newtown

The area is located to the East of Newtown. This area has all the technical requirements to allow the implementation of a small-scale wind farm with 2 to 3 wind turbines.

The average wind speed is 6.5m/s to 7m/s and it has a regular and flat area with a gentle slope.

The distance to the grid is approximately 2 - 3km. URS recommends undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

The site is inside an AONB and the presence of residential areas constrains the possibility for development.

Conclusion:

The East Newtown site within Area 10 is considered as Not-Suitable.

Figure 15 shows the Area 10 and the East Newtown Site within.

5.3.3.12 AREA 11: East Cowes

The area is located to the East of Cowes. This area has all the technical requirements to allow the implementation of a small scale wind farm with 6 wind turbines.

The average wind speed is 7 m/s and it has a regular and flat area.

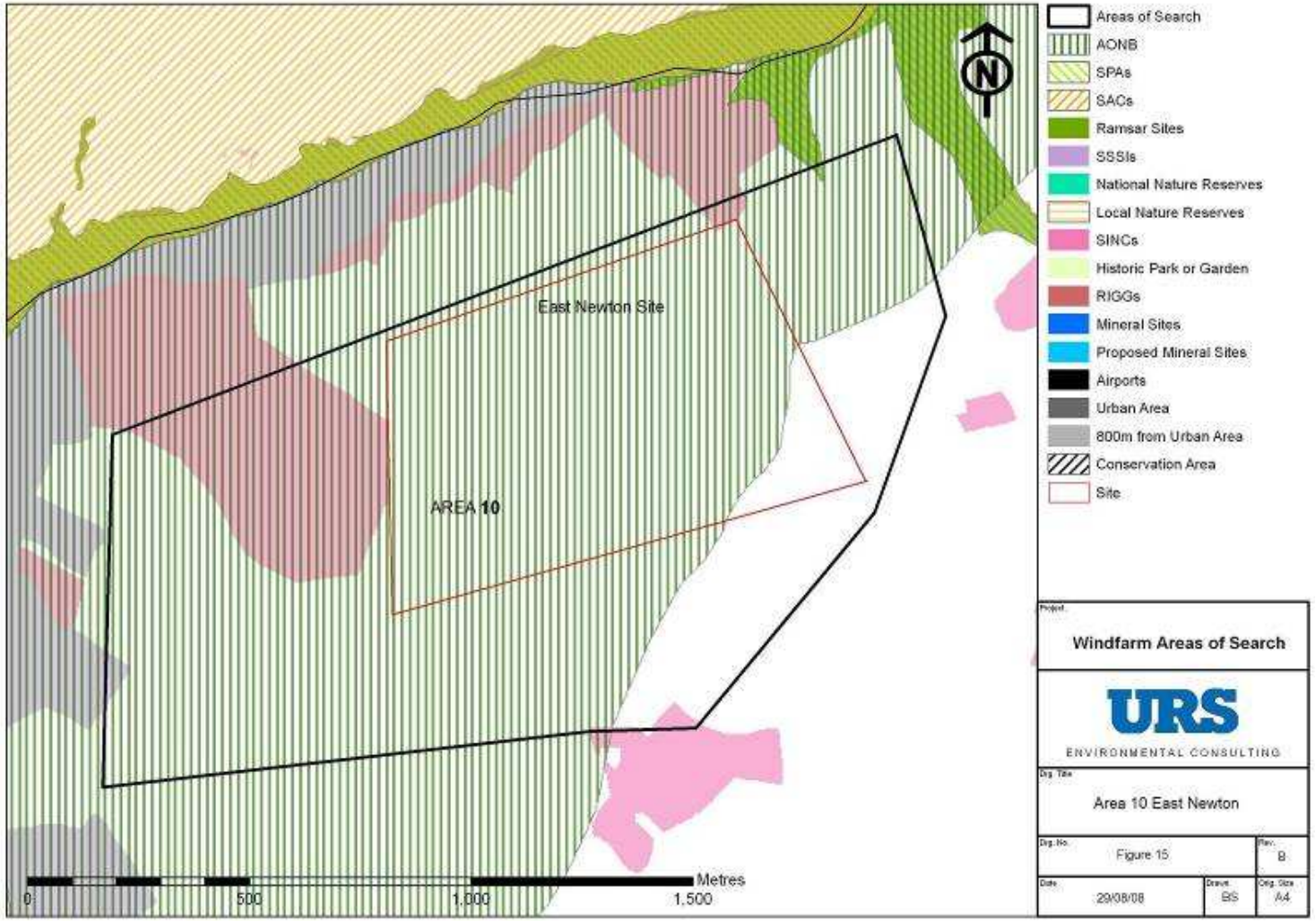
Distance to the grid is approximately 1km. URS recommends a formal consultation with the electricity company to determine the possibility of connection in the area.

The site is inside an AONB and the presence of residential areas constrains the possibility for development

Conclusion:

Area 11, Site East Cowes is considered as Not-Suitable.

Next Figure 16 shows the Area and East Cowes Site within.


East Newton Site
AREA 10
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
0
500
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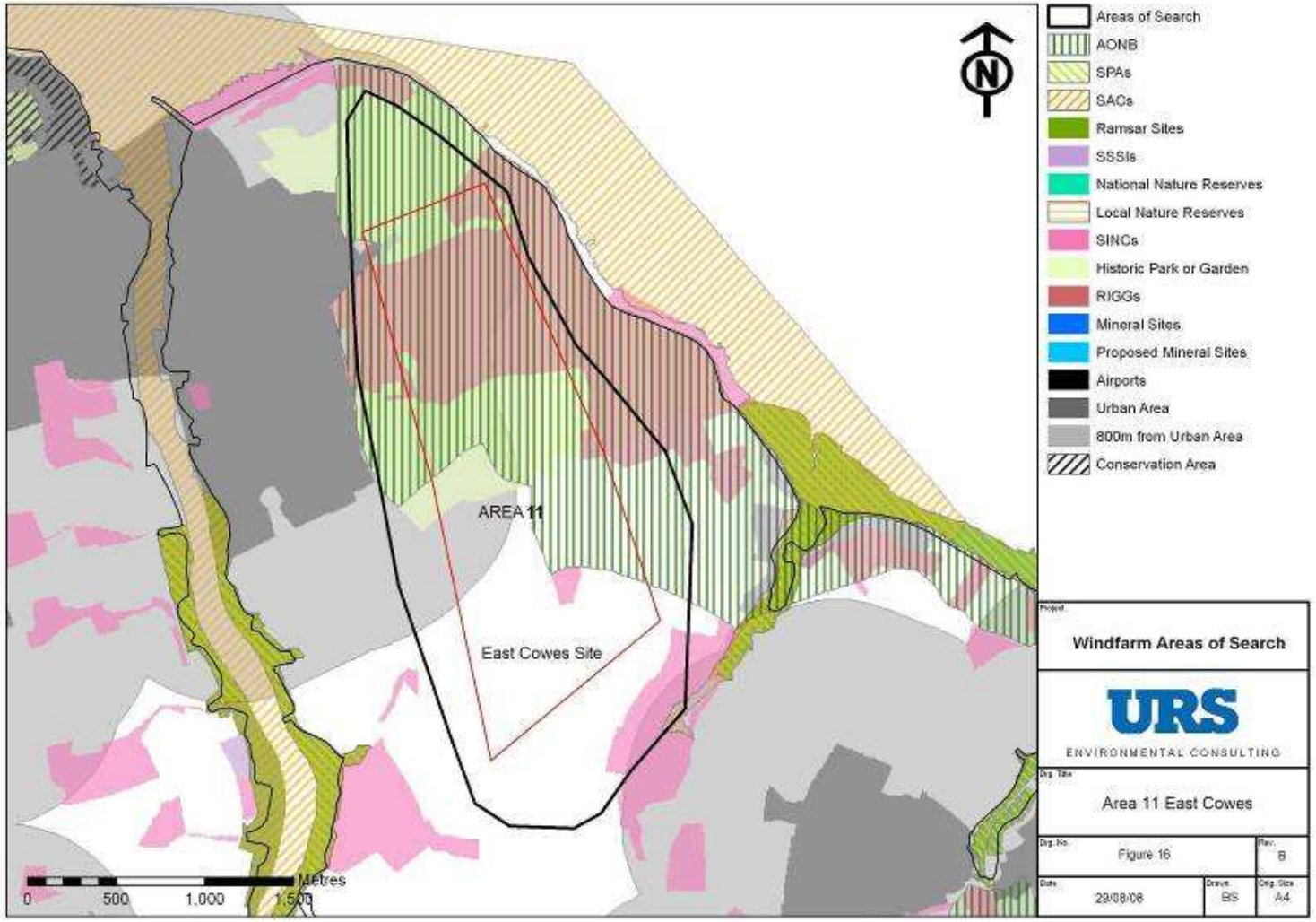
Metres
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 10 East Newton
Figure 15
B
29/08/08
BS
A4


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
AREA 11
East Cowes Site
0
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Metres
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 11 East Cowes
Figure 16
B
29/08/08
BS
A4

5.3.3.13 AREA 12: Upton

The area is located south of Ryde, in the area of Upton.

The technical feasibility of the site is good, with average wind speeds of 7.5m/s. The site has a regular and flat area.

Approximate distance to the grid is less than 1km. URS recommends undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

The area is outside the AONB but there are significant numbers of residential properties in the vicinity, which will act as a constraint to the development of more than 3 wind turbines.

Conclusion:

Area 12, Site Upton is a Suitable Area with Restrictions, which will require preventive and mitigation measures. The site is appropriate for community schemes and could hold 4 to 6MW capacity.

Figure 17 shows the Area 12 and Upton Site within.

5.3.3.14 AREA 13: St Helens

The area is located to the West of St Helens and it has the technical requirements necessary for the implementation of a small-scale wind farm with 4 to 6 wind turbines.

The site is in reasonable proximity to urban areas and isolated residences, which represent a constraint to the size of the project, allowing only 2 to 3 wind turbines.

The distance to the grid is around 1km. URS recommends undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

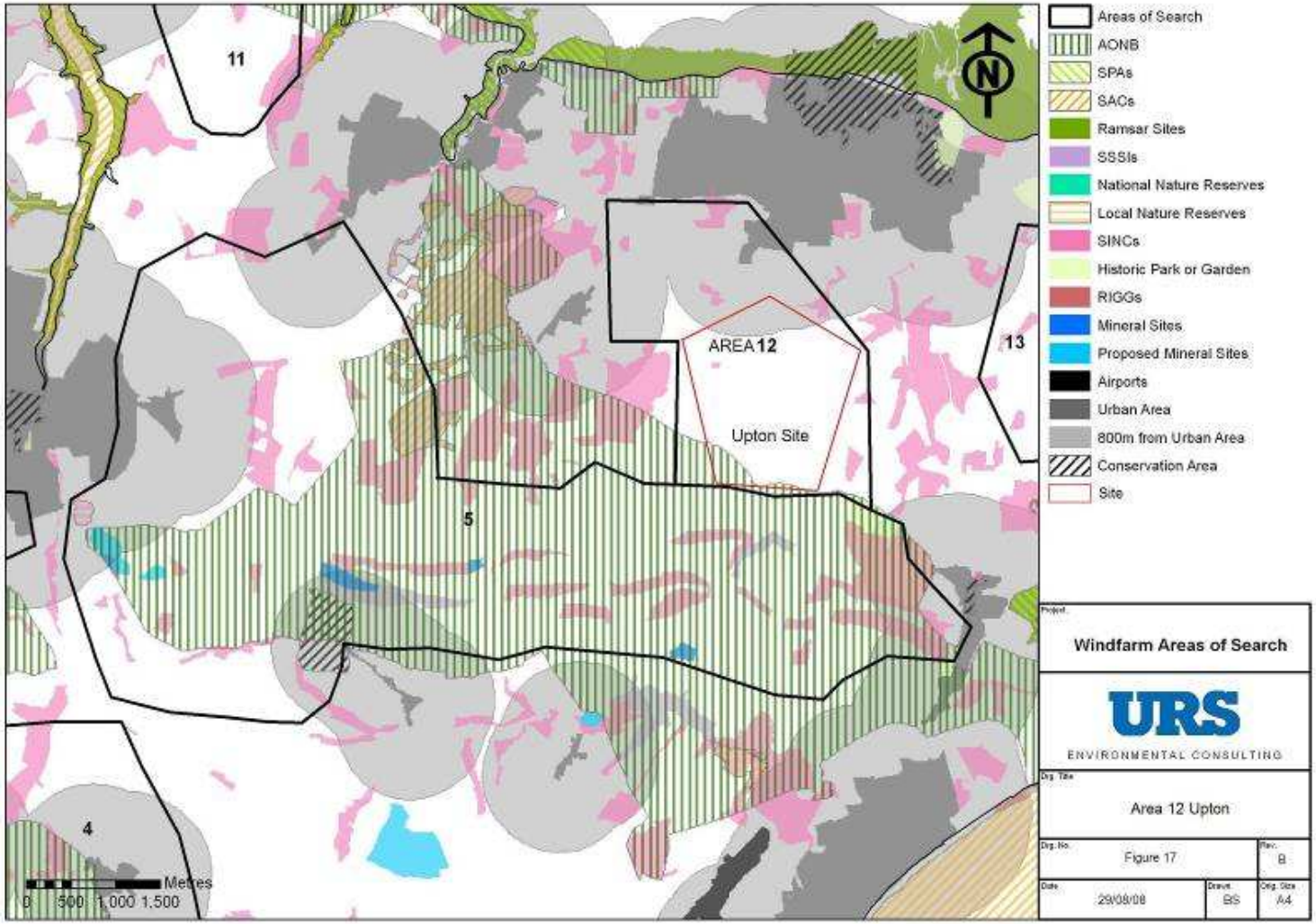
This site coincides with the Site A proposed by Whitbybird.

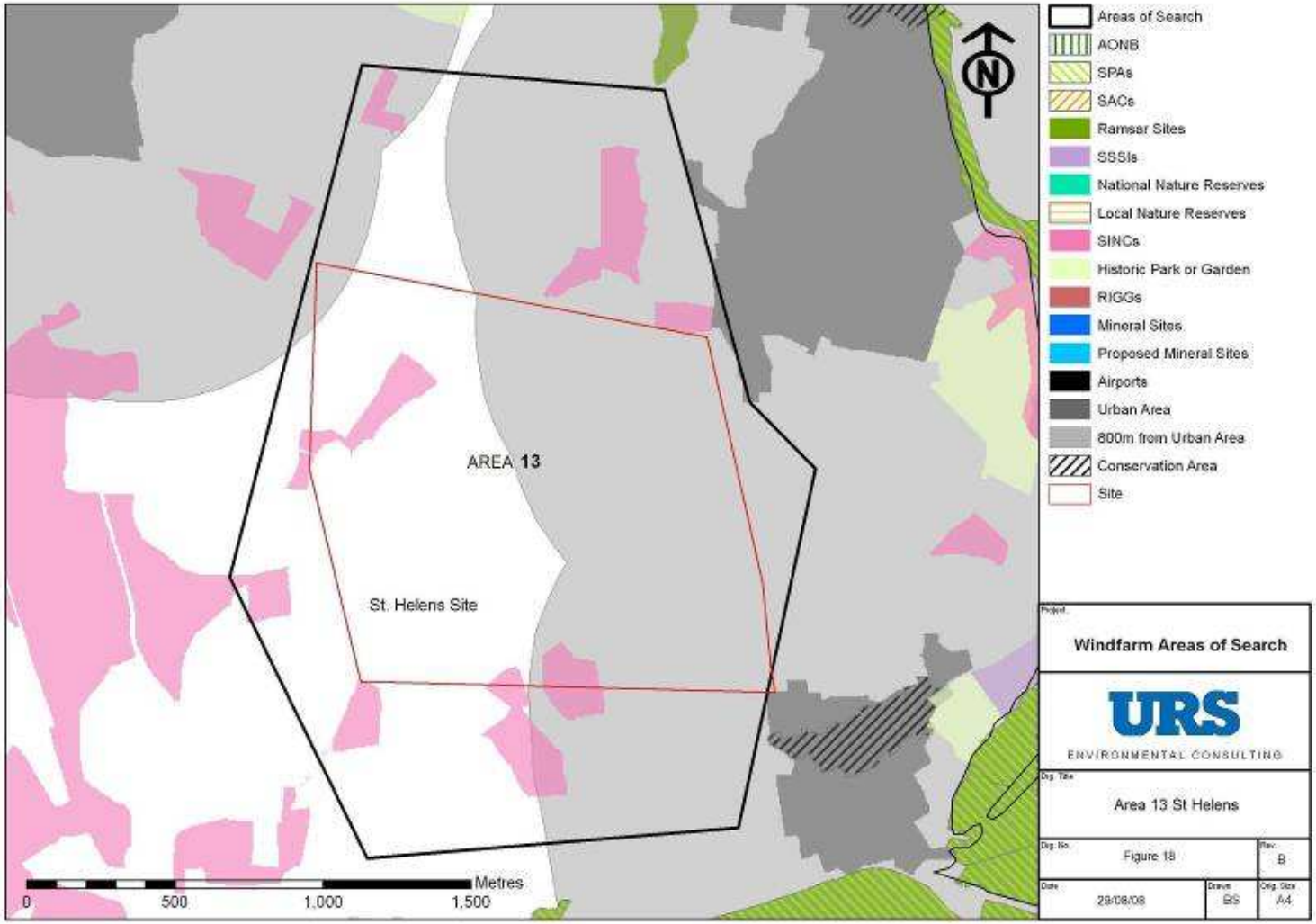
The area is outside the AONB and is without significant environmental constraints.

Conclusion:

The St Helens site within Area 13 is a Suitable Area. The site is appropriate for community schemes and could hold 4 to 6MW of capacity.

Figure 18 shows the Area 13 and the St Helens Site within.


11
AREA 12
Upton Site
13
5
4
Metres
0 500 1,000 1,500
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Project
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 12 Upton
Drg. No.
Figure 17
Rev.
B
Date
29/08/08
Drawn
BS
Orig. Size
A4


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
AREA 13
St. Helens Site
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Metres
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Area 13 St Helens
Figure 18
B
29/08/08
BS
A4

5.3.3.15 AREA 14: Whitecliff Bay

The area is located to the West of Whitecliff Bay and to the East of Brading.

This open area has average wind speeds of 7m/s to 8m/s, enough space for 6 wind turbines and is a regular and flat area with a gentle slope up to 60 m.

The land use is primarily agricultural and has good access.

Distance to the grid is approximately 1km. URS recommends undertaking formal consultation with the electricity company to determine the possibility of connection in the area.

An SSSI, AONB and a civil airport in Hilway have been identified close to the site.

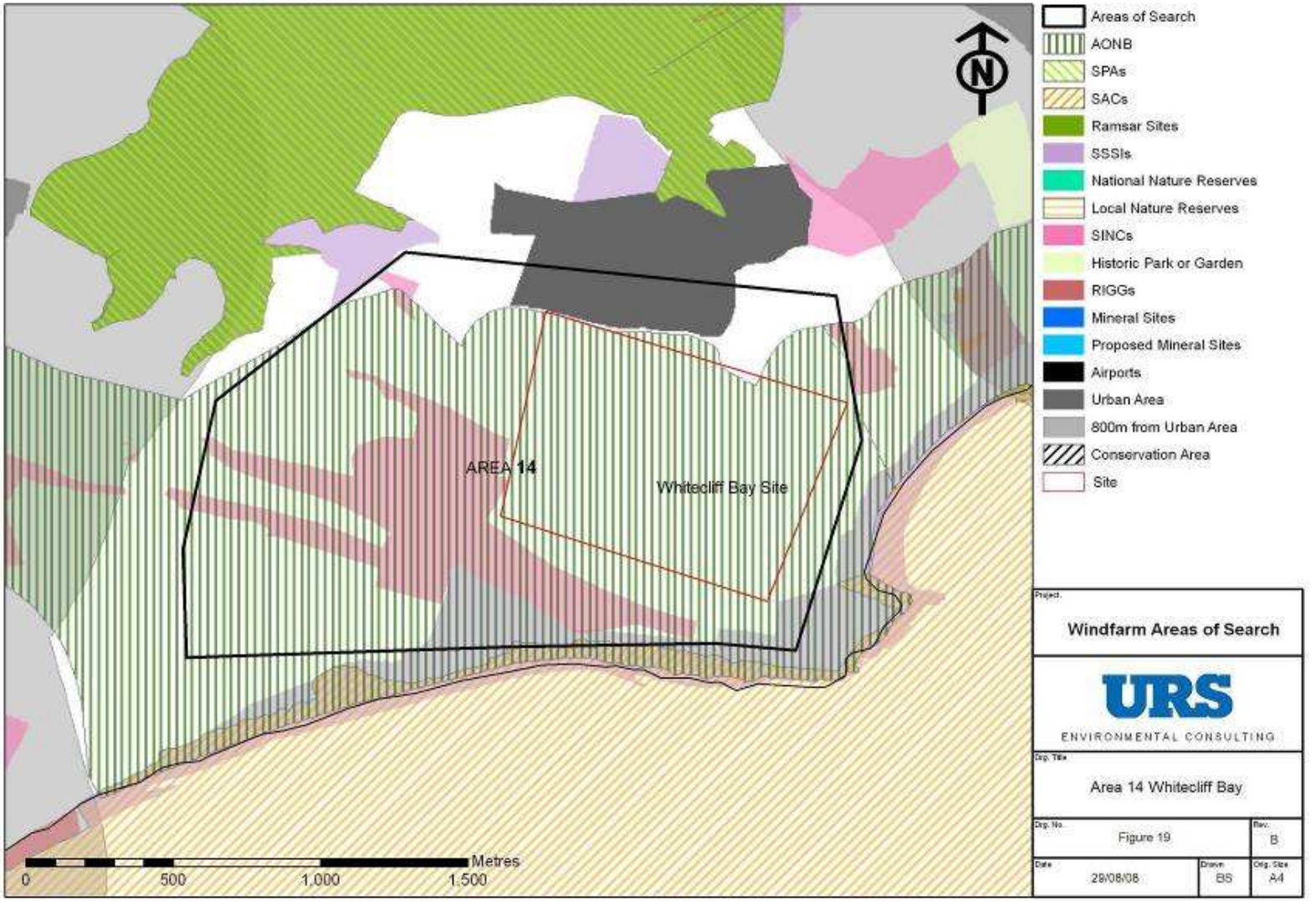
Despite having good technical conditions for the development of a small-scale project, the presence of the above constraints and the presence of urban and residential areas make the site infeasible for wind farm development.

Conclusion:

The Whitecliff Bay site within Area 14 is a Not-Suitable Area.

Figure 19 shows the Area 14 and the Whitecliff Bay Site within.

The following Table A and B provide a summary of this chapter's conclusions.


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
AREA 14
Whitecliff Bay Site
N
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Metres
Project
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Dwg. Title
Area 14 Whitecliff Bay
Dwg. No.
Figure 19
Rev.
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Date
29/08/08
Drawn
BS
Orig. Size
A4

Table A: Summary of proposed sites identified by Aerolaminates Ltd and Whitbybird.

SITE	POTENTIAL CAPACITY (MW)	TYPE OF DEVELOPMENT	MAIN CONSTRAINTS	DEFINITION*	COMMENTS
SITE 7 West Wing	10 MW	COMMUNITY/COMMERCIAL	Not relevant	SA	Coincides with AREA 1 Site Wellow identified by URS
SITE 8 Bleak Down	6-8 MW	COMMUNITY/COMMERCIAL	Inside AONB	SAwR	Coincides with AREA 4.
SITE 10 Bowcombe down/Rowridge	6-10 MW	COMMUNITY/COMMERCIAL	Inside AONB	SAwR	Coincides with AREA 3 Rowridge identified by URS.
SITE A St Helens	6 MW	COMMUNITY/COMMERCIAL	Close to residences	SAwR	Design limitation.
SITE B Arreton Valley	8 MW	COMMUNITY/COMMERCIAL	Close to residences	SAwR	Coincides with Area 5
SITE C St George Down	4 MW	None	Small scale development	NSA	Inappropriate location

*SA: Suitable Area; SAwR: Suitable Area with Restrictions; NSA: Not Suitable Area

Table B: Summary of proposed sites identified by URS.

SITE	POTENTIAL CAPACITY (MW)	TYPE OF DEVELOPMENT	MAIN CONSTRAINTS	DEFINITION*	MITIGATION MEASURES
AREA 1 Site Wellow	10-12 MW	COMMUNITY/COMMERCIAL	Not relevant	SA	To be defined in the EIS
AREA 1 Site Shalcombe	6-8 MW	None	Inside AONB, SAC, SSSI	NSA	None
AREA 2 North Chessell	4-6 MW	COMMUNITY	Inside AONB; proximity to SINC, SSSI and Historic Park/Garden	SAwR	Avoid impact to SPA. Landscape study and Project integration required.

AREA 2 South Chessell	8-10 MW	None	Inside AONB; Effect on to SINC, SSSI.	NSA	None
AREA 3 Rowridge	6-10 MW	COMMUNITY/COMMERCIAL	Inside AONB; Near SINC, SSSI and Historic Park/Garden	SAwR	Avoid impact to SINC, SSSI and Historic Park/Garden. Landscape study and Project integration required. Design of wind farm as a singular installation.
AREA 3 Cheverton	6 MW	COMMUNITY/COMMERCIAL	Inside AONB; Near SINC and Mineral Site	SAwR	Avoid affection to SINC area. Landscape study and Project integration required. Design of the wind farm as a singular installation.
AREA 4 South Newport. Site Bowcombe	4-6 MW	COMMUNITY	Inside AONB; Conservation Area at the North.	SAwR	Avoid impact to Conservation Area. Landscape study and Project integration required. Design of the wind farm as a singular installation.
AREA 4 South Newport. Site Kingston-Godshill	12 MW	COMMUNITY/COMMERCIAL	Inside AONB	SAwR	Landscape study and Project integration required. Design of the wind farm as a singular installation.
AREA 5 East Newport. Site Havenstreet	4 to 6 MW	COMMUNITY	Near SINC	SA	Design of the wind farm without impact on the SINC.
AREA 5 East Newport. Site Arreton	8-10 MW	COMMERCIAL	Inside AONB	SAwR	Landscape study and Project integration required. Design of the wind farm as a singular installation.
AREA 6 Niton	6 MW	None	Inside AONB; Presence of	NSA	

			SINC; Grid connection at 10km.		
AREA 7 West Wroxall	8-10 MW	COMMUNITY/COMMERCIAL	Inside AONB: Near SINC and Historic Park/Garden	SAwR	Design of the wind farm without impact on the SINC. Landscape study and Project integration required.
AREA 8 East Wroxall North	4 MW	COMUNITY	Inside AONB; close to Urban Areas	SAwR	Landscape study and Project integration required. Design of the wind farm as a singular installation.
AREA 8 East Wroxal South	8-10 MW	None	Inside AONB; Affection to SINC, SSSI and SAC	NSA	
AREA 9 West Newton	4-6 MW	None	Inside AONB. Area with residences.	NSA	
AREA 10 East Newton	4-6 MW	None	Inside AONB. Area with residences.	NSA	
AREA 11 East Cowes	4-6 MW	None	Area with residences.	NSA	
AREA 12 Upton	4-6 MW	COMMUNITY	Area with residences.	SAwR	Design of the wind farm without affecting the residences.
AREA 13 St Helens	4-6 MW	COMUNITY	Not relevant	SA	
AREA 14 Whitecliff Bay	4 MW	None	Inside AONB. Area with residences. Civil Airport.	NSA	

*SA: Suitable Area; SAwR: Suitable Area with Restrictions; NSA: Not Suitable Area

6. CONCLUSIONS

The aim of this chapter is to summarise the conclusions of the preceding chapters.

- Assessment and ratification of the Methodology followed by Whitbybird and Aerolaminates Ltd.
- Assessment of the viability of sites identified by these companies for both commercial and community based wind turbine facilities.
- Assessment of location according all the aspects included in the report. (I'm unsure what you mean here, please explain…)
- Categorization of identified sites into: Suitable, Suitable with Restrictions, or Non-suitable.
- Identification of gaps in the methodologies followed by Whitbybird and Aerolaminates Ltd., and recommendation of actions to overcome these gaps.
- Recommendations as to the soundness of the two reports as evidence for the Island Plan core strategy.
- Preventive/mitigation measures.

6.1 Assessment of the Methodology Used in the Documents Provided

The methodology used in both reports is appropriate, and technical and environmental aspects for the implementation of wind farm projects have been taken into account.

However, for the "Draft Scoping Document- Isle of Wight Wind Technology Park", there was a need for updating some of the key criteria for the site filtering and a more detailed assessment of the positive criteria.

In the "Site Selection for Wind Turbine Clusters" the site selection was too limiting as it rules out any area inside the AONB. As a result the number of sites identified is low and the locations that are identified are inappropriate (i.e. low wind resource, deep in valleys, slopes, etc). Additionally, the report bases the site selection on the overlay of the different layers, without assessing the real negative impact of the individual layers.

Given that both reports came to different conclusions while having the same aims and using the same input data, it was necessary for URS to develop and apply a new methodology to identify suitable areas for wind farm development, based on the best aspects the previous methodologies and applying today's best practice for the development of wind farms (see Chapters 4 and 5).

6.2 Assessment of the identified sites in the Documents Provided

Most of the potential sites identified in both reports are considered suitable, or suitable with restrictions.

Chapter 5 of this report concludes that the sites identified in the "Draft Scoping Document- Isle of Wight Wind Technology Park" are considered as follows:

- Site 7 West Wight: Suitable Area with a potential capacity for up to 10 MW.
- Site 8 Bleak Down: Suitable Area with Restrictions with a potential capacity of 6-8 MW, after applying some mitigation measures.
- Site 10 Bowcombe down/Rowridge: Suitable Area with Restrictions with a potential capacity for 6-10 MW.

For sites identified in "Site Selection for Wind Turbine Clusters" report, URS considers the following:

- Site A St Helens: Suitable Area with Restrictions. Due to the reduced available space, there is a limitation in the design of the project.
- Site B Arreton Valley: Suitable Area with Restrictions for Wind turbine installation. This site is included in the Areas identified by URS in Chapter 5.
- Site C St Georges Down: It is considered an inappropriate location because of topography and wind resource, as well as due to the limited space.

6.3 Identification of Gaps and Recommendations.

The identification of Gaps in both methodologies is based on different concepts for each document.

The "Draft Scoping Document- Isle of Wight Wind Technology Park" by Aerolaminates Ltd requires an updated methodology in terms of some of the key site filtering criteria, along with a deeper assessment of the positive criteria (as it explained in Chapter 4). Other than this, there are no significant gaps in the methodology, but as follows are some recommendations for updating of the report:

- The update of the technical criteria for site selection.
- The implementation of mitigation measures in order to assure a compatible wind farm layout.
- The need for a Mesoscale Mapping of Isle of Wight to validate the potential wind resource.
- Financial assessment of each wind farm site for the validation of potential locations.

The negative filtering process used by Whitbybird in the "Site Selection for Wind Turbine Clusters" was too limiting as it rules out any area inside AONB. Additionally, the report bases the site selection on the overlay of the different layers without assessing the criteria selected by the individual layers.

Recommendations to overcome the gaps in the methodology followed by Whitbybird are as follows:

- The Explanation of the methodology as well as the criteria selected for the identification of the sites.
- The consideration of the total area of the Island for the site selection (instead of only areas outside the AONB).

- The need for a Mesoscale Mapping of Isle of Wight to validate the potential wind resource.

- An update of the financial assessment of each wind farm.

6.4 Recommendations as to the soundness of the two reports as evidence for the Island Plan core Strategy

The methodology used in both reports is appropriate and technical and environmental aspects for the implementation of wind farm projects have been taken into account.

However, in the 'Draft Scoping Document- Isle of Wight Wind Technology Park', there is a need for updating some of the key aspects for the site filtering and a more detailed assessment of the positive aspects, whereas the site searching in 'Site Selection for Wind Turbine Clusters' is too limiting, ruling out any area within AONB. The result is few sites with inappropriate location in terms of wind resource, layout, etc.

Besides, the methodology used in the reports bases the site searching on the overlay of the different layers, without assessing the real negative impact of the individual layers.

As conclusion, none of the previously available reports are sound for the Island Plan core Strategy and this report should be used instead.

6.5 Preventive / Mitigation measure

The implementation of preventive and/or mitigation measures is a necessary to ensure the compatibility of windfarm developments with significant environmental constraints.

The identification of suitable measures should be done on a case-by-case basis, and should be analysed further for each particular site.

However, with the particular landscape value of Isle of Wight (more than half of the island being an AONB) there is a need for the implementation of preventive and mitigation measures for potential sites inside the AONB. Measures such as those detailed below, should be considered to minimise impacts to the AONB:

- Landscape studies and careful wind farm design to minimize the landscape intrusion;

- Project Integration – e.g. provision of recreation areas around the wind turbines, tourist information panels, etc.

- Environmental Education Centres – e.g. guided visits to discover the site's ecological/nature conservation value in tandem with the environmental benefits of the project;

- Early public consultations and displays when considering development of any of the sites within the AONB, to demonstrate the need for renewable energy and rationale for the site selection.

There are also some other measures to be applied related to windfarm design so as to avoid the impacts to residential areas or environmentally designated areas, such as SACs, SSSIs, National Nature Reserves, SINCs, etc. These should be examined in more detail during detailed planning application stage for each specific site. Some example measures that could be applied are described in Table C, below:

Table C. Impacts and mitigation measures

POTENTIAL IMPACT	MEASURES
VEGETATION Natural vegetation in the occupied area, generally low scrubland.	- Mark special interest species to avoid any damage. - Environmental Restoration of the site after construction. - Recovery of affected forest surface area.
FAUNA Space occupied by the different structures	- Design to incorporate sufficient space between wind turbines to assure the free movement of fauna. - Respect the nesting and breeding season of species during the construction. - Monitoring of birdlife during the operation phase.
WASTE Production of inert waste, urban waste and harmful waste.	- Waste management: Correct segregation of waste and management of it by an Authorised Waste Management Agent.
SOIL Production of erosive processes	- Fitting-out of the surface drainage network. - Environmental Restoration.
WATER Solid particles suspended in runoff water during construction.	- Stockpiling of materials outside natural runoff channels. - Fitting-out of the surface drainage network.
NOISE Bothersome noise due to noise production in the areas nearby	- Noise control mufflers on the work vehicles. - Periodic monitoring in the areas around the wind generators to check acoustic levels.
VISUAL IMPACT Degradation of landscape integration into the environment	- Detail study during the design phase to reduce the visual line of sight. - Design of visual barriers.

6.6 Sites qualification and main description as: Suitable, Suitable with restrictions, or Non-suitable.

As a conclusion of this report URS has identified potential sites for wind farms. Chapter 4 details the methodology used to this end and the results are shown in Chapter 5.

The positive filtering performed revealed 20 potential sites within 14 areas across the island.

Subsequently all absolute constraints were analysed and 20 sites divided into the following categories:

- Suitable Area (SA): Means that the development of a project is viable. Only 3 sites have been identified in this category.

- Suitable Area with Restrictions (SAWR): The development of a wind farm seems viable but there are some constraints in the area that would require the implementation of preventive/mitigation measures in order to ensure compatibility of wind farm development on the site. 9 sites have been included in this category.

- Non-Suitable Area (NSA): The constraint of the sites eliminates any possibility for the development of a wind farm. From the technically viable sites identified by URS, 8 sites have been included in this category.

As a result of this report there is the Table B in Chapter 5 and the Figure 3: Consolidate Sites, with the description of the potential sites.

6.7 Further URS Recommendations for the Island Plan core Strategy.

For the completion of the Wind Energy Development Plan for the Isle of Wight Core Strategy, URS recommends further assessment on some of the findings of this study in order to successfully develop the Isle of Wight Council's sustainable community strategy – "Eco-Island.

The main aspects requiring further actions are listed below:

- **To encourage development of selected areas**. URS recommends a two-phase approach: Phase I should encourage the development of community led projects by carrying out a site assessment including grid connection and environmental studies (birdlife, vegetation, soils, mitigation measures, etc); Phase II the Council should work together with developers in the identification and development of commercial projects.

- **PR campaign**. URS recommends a communication campaign to show the positive aspects of windfarms and to carry out a public opinion survey to assess their local acceptance. The communication campaign should be based on "Myths and Facts", socioeconomic benefits, real environmental impacts, best practices, etc.

- **Landscape Assessment**. URS recommends a full landscape assessment on the selected areas be carried out to validate areas within AONB and to provide guidance to developers (as per first point above).

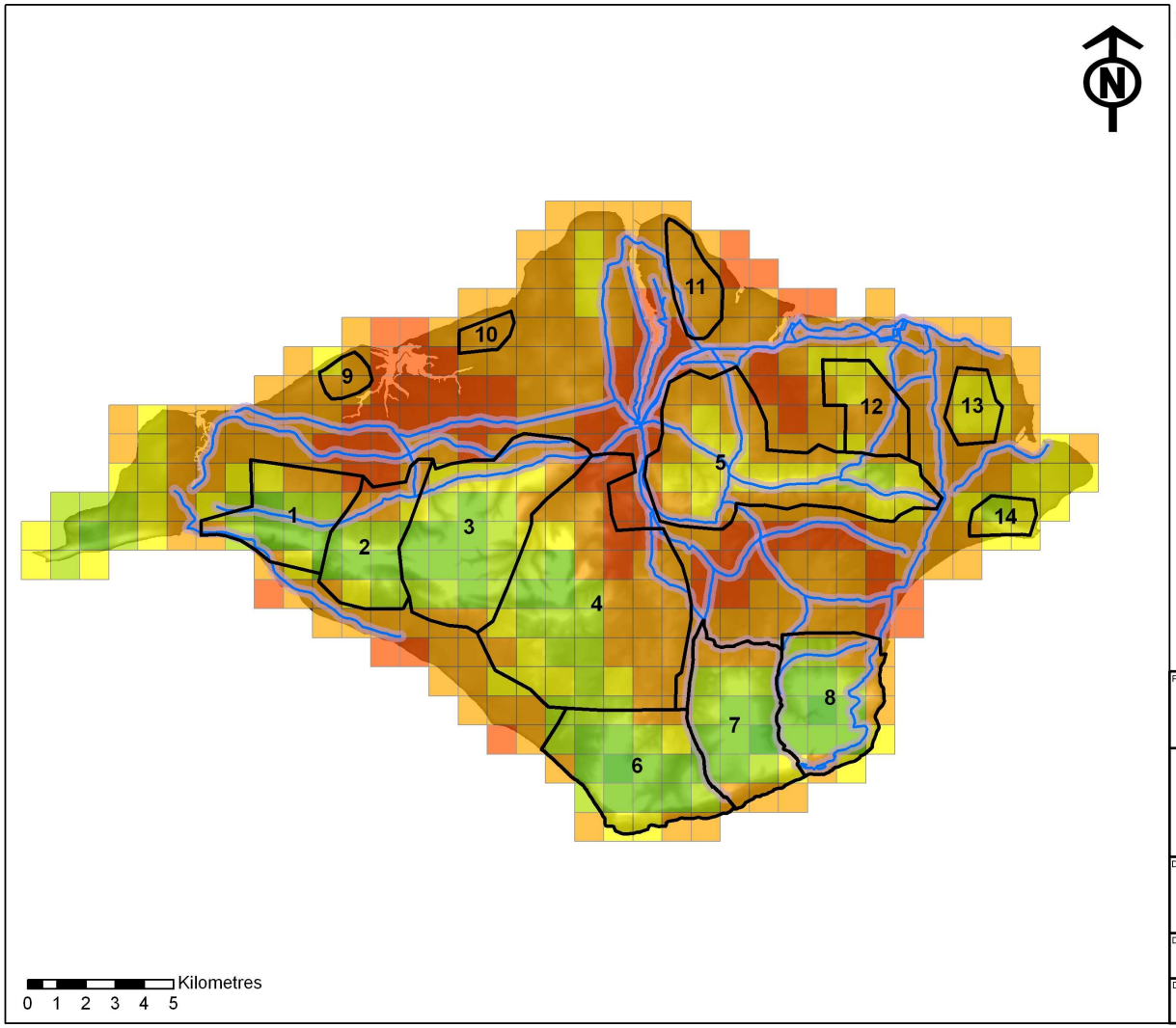
- **Wind maps**. URS recommends a detailed wind map of the Island based on mesoscale map and available on-site data be prepared.

- **Grid Connection**. URS recommends to engage consultations with Scottish and Southern Energy to assess available grid connection, solutions and alternatives.

- **Economics**. Financial assessment of each potential windfarm.

- **Land ownership** Ownership statement in order to know the availability of the lands in each site.

Appendix A - Figures



Areas of Search

Transport Infrastructure

200m from Transport Infrastructure

Wind at 45m AGL

(ms $^{-1}$)

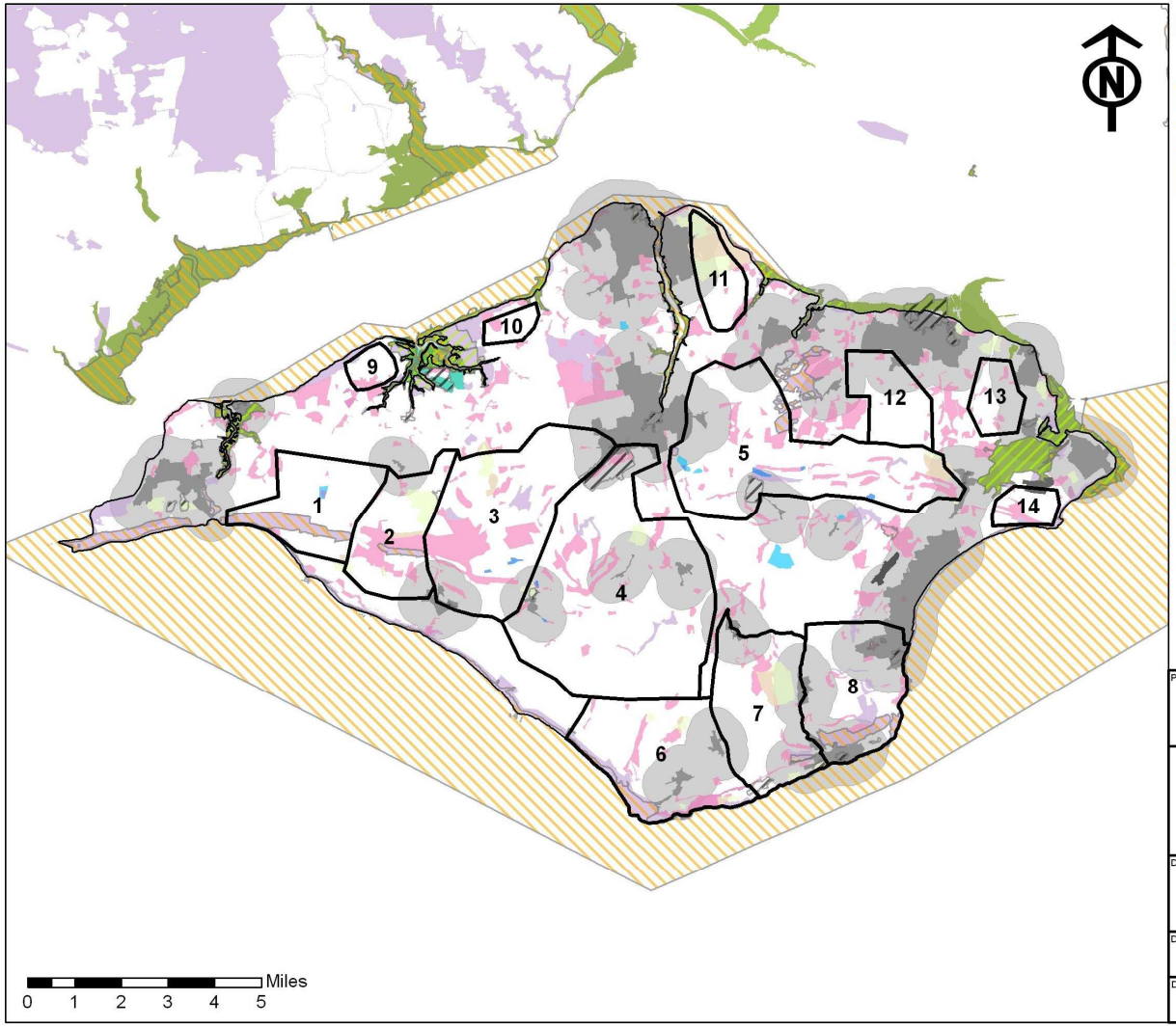
- 8.5 - 8.9
- 7.8 - 8.4
- 7.3 - 7.7
- 7.0 - 7.2
- 6.5 - 6.9
- below 6.5

Elevation

High: 240m

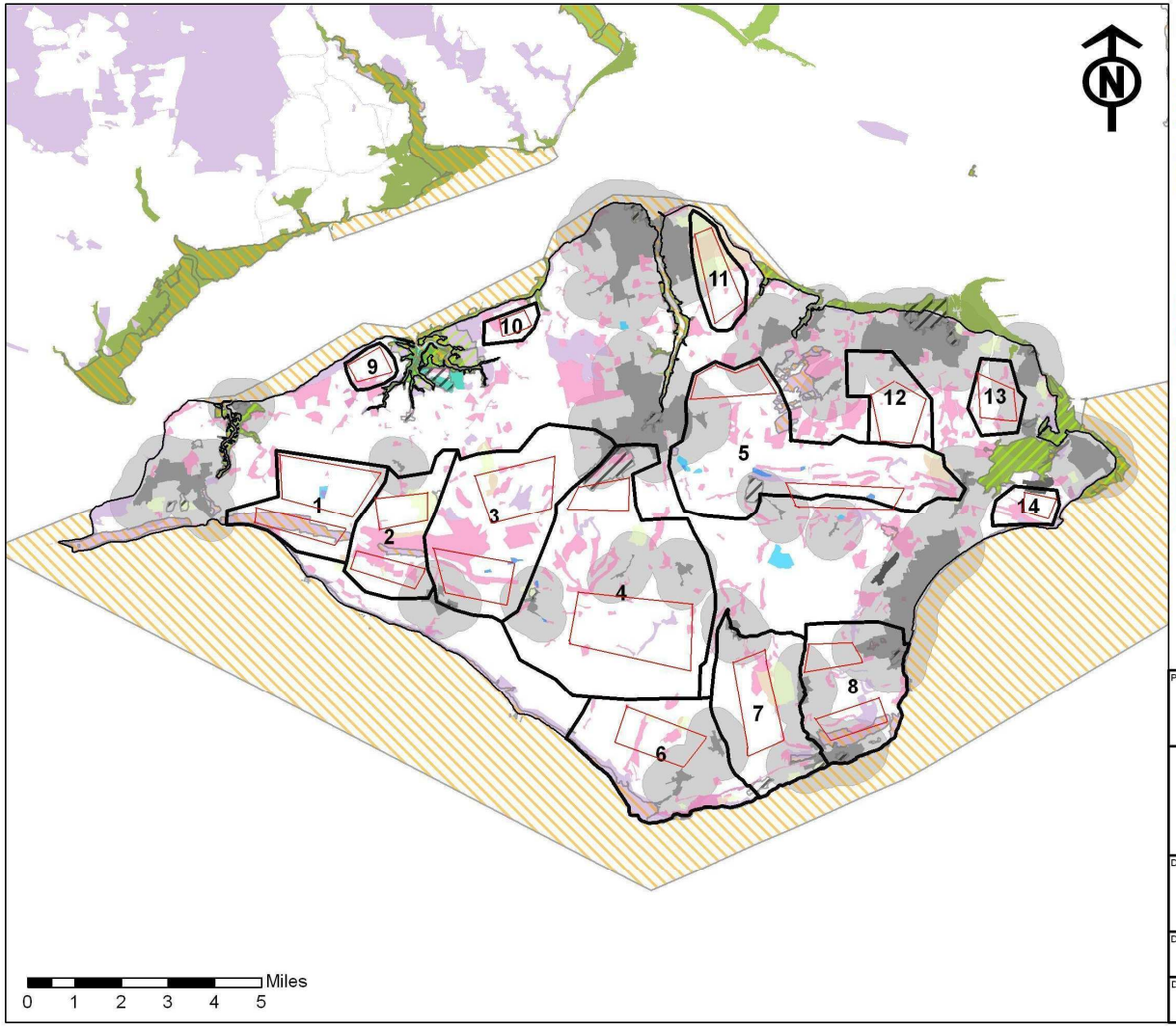
Low: 0m

Project. **Windfarm Areas of Search**		
URS ENVIRONMENTAL CONSULTING		
Drg. Title **Positive Filter with Areas of Search**		
Drg. No. Figure 1		Rev. B
Date 28/08/08	Drawn PS	Orig. Size A4



- Areas of Search
- Conservation Area
- SPAs
- SACs
- Local Nature Reserves
- Ramsar Sites
- Urban Area
- 800m from Urban Area
- Historic Park or Garden
- SINCs
- National Nature Reserves
- SSSIs
- Airports
- Mineral Sites
- Proposed Mineral Sites
- RIGGs

Project. **Windfarm Areas of Search**		
URS ENVIRONMENTAL CONSULTING		
Drg. Title **Constraints**		
Drg. No. Figure 2		Rev. C
Date 28/08/08	Drawn PS	Orig. Size A3



- Areas of Search
- Conservation Area
- SPAs
- SACs
- Local Nature Reserves
- Ramsar Sites
- Urban Area
- 800m from Urban Area
- Historic Park or Garden
- SINCs
- National Nature Reserves
- SSSIs
- Airports
- Mineral Sites
- Proposed Mineral Sites
- RIGGs
- Sites

Project.
Windfarm Areas of Search

URS
ENVIRONMENTAL CONSULTING

Drg. Title
Constraints

Drg. No.		Rev.
Figure 3		C
Date	Drawn	Orig. Size
28/08/08	PS	A3

Identified Sites (WhitbyBird)

- Preferred
- Less Suitable

Identified Sites (AeroLaminates)

- Preferred
- Less Suitable
- URS Areas of Search
- AONB
- SPAs
- SACs
- Ramsar Sites
- SSSIs
- National Nature Reserves
- Local Nature Reserves
- SINCs
- Historic Park or Garden
- RIGGs
- Mineral Sites
- Proposed Mineral Sites
- Airports
- Urban Area
- 800m from Urban Area
- Conservation Area

Project.

Windfarm Areas of Search

URS
ENVIRONMENTAL CONSULTING

Drg. Title

AeroLaminates & WhitbyBird Areas with AONB & Constraints

Drg. No.		Rev.
Figure 4		B
Date	Drawn	Orig. Size
28/08/08	PS	A4


N
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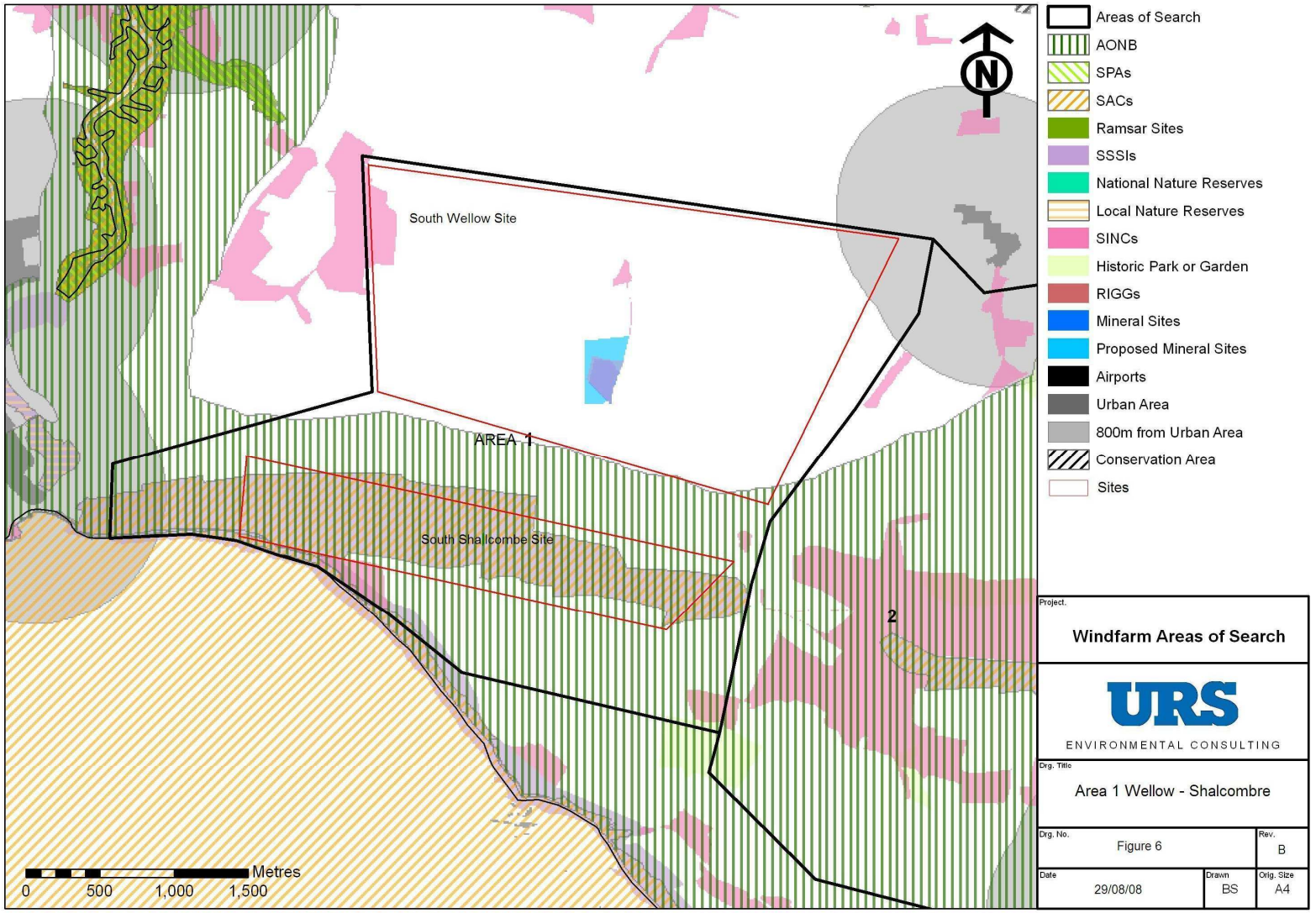
7
8
9
10
11
12
13
14
Kilometres
0 1 2 3 4 5
Consolidated Sites
Suitable
Suitable, with Restrictions
Unsuitable
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Consolidated Sites
Drg. No.
Figure 5
Rev.
B
Date
28/08/08
Drawn
PS
Orig. Size
A4



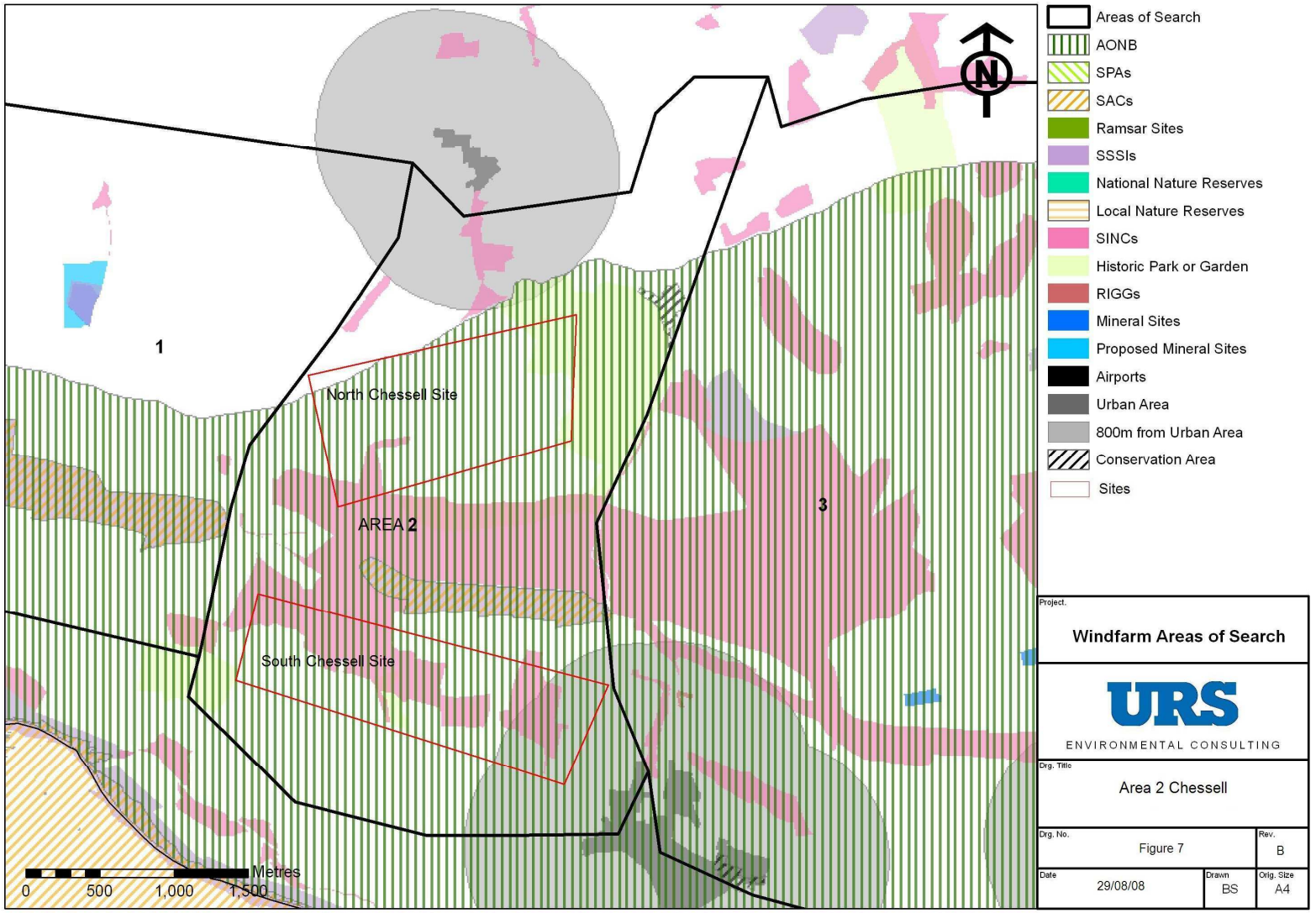
Project.
Windfarm Areas of Search

URS
ENVIRONMENTAL CONSULTING

Drg. Title
Area 1 Wellow - Shalcombre

Drg. No.	Rev.
Figure 6	B

Date	Drawn	Orig. Size
29/08/08	BS	A4


N
1
North Chessell Site
AREA 2
3
South Chessell Site
0
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1,000
1,500
Metres
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
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Area 2 Chessell
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Figure 7
Rev.
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Date
29/08/08
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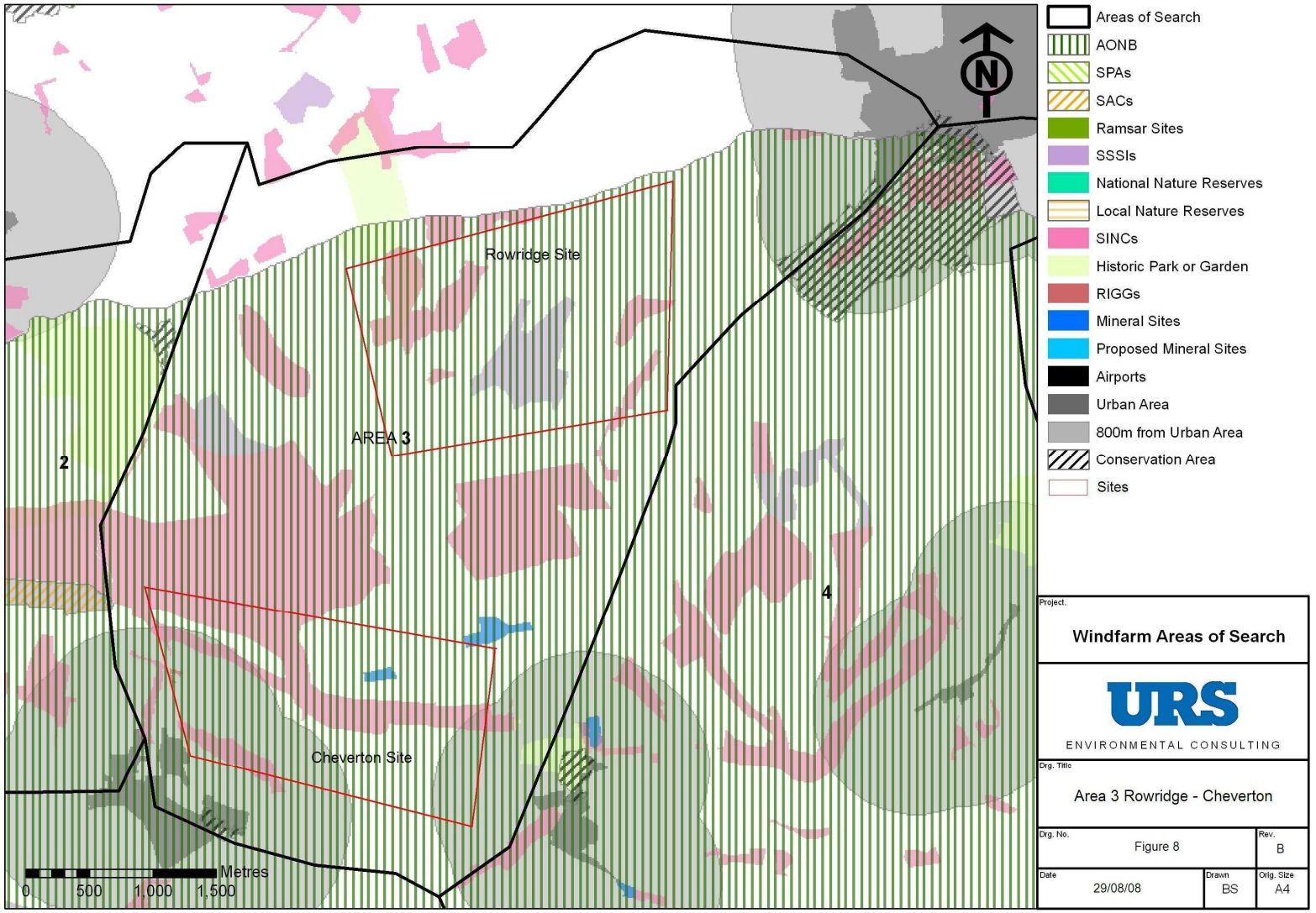
Orig. Size
A4


Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
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Rowridge Site
AREA 3
2
4
Cheverton Site
Metres
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Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 3 Rowridge - Cheverton
Drg. No.
Figure 8
Rev.
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29/08/08
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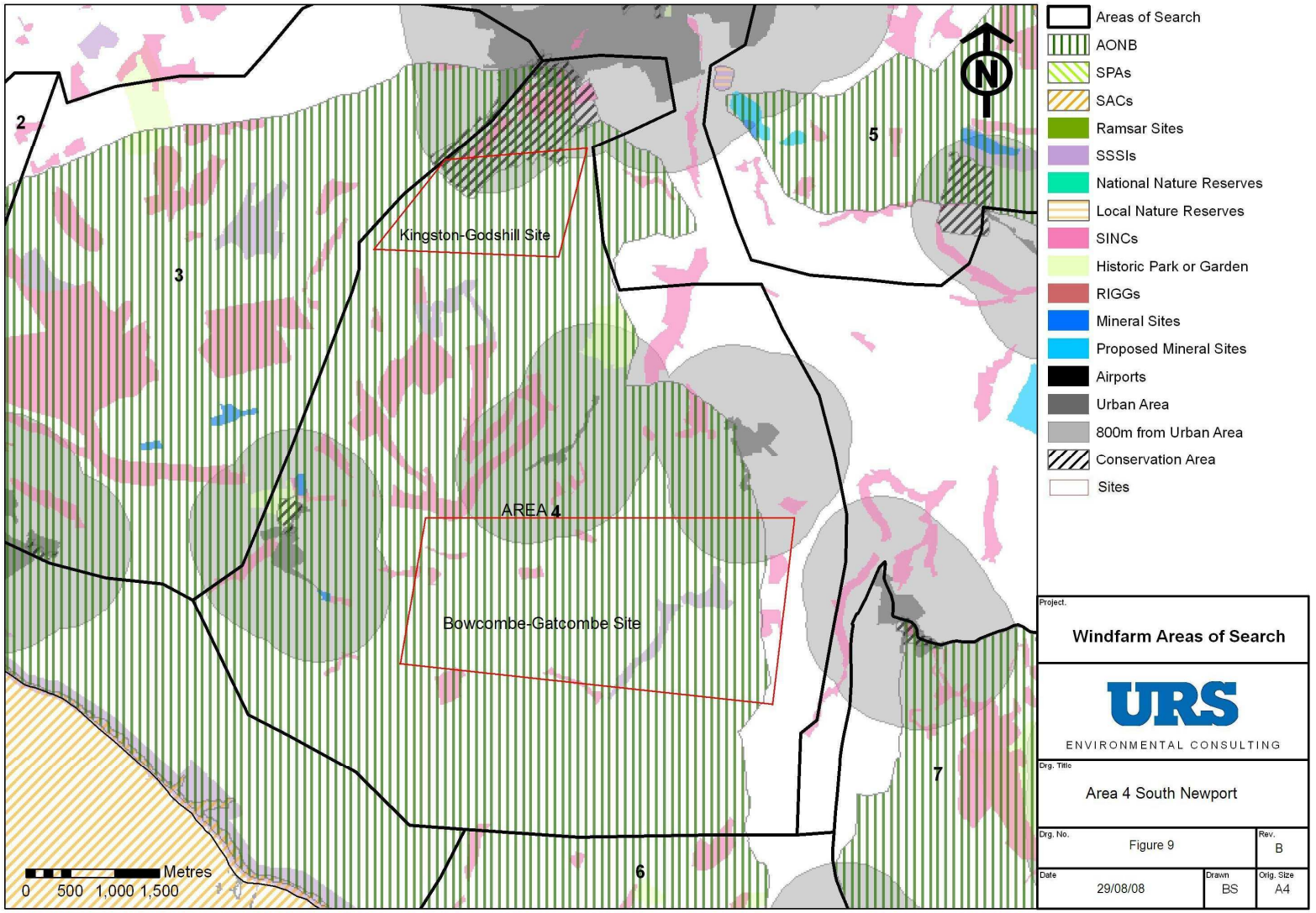
Orig. Size
A4


2
3
5
6
7
Kingston-Godshill Site
AREA 4
Bowcombe-Gatcombe Site
N
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Sites
Metres
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Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 4 South Newport
Drg. No.
Figure 9
Rev.
B
Date
29/08/08
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Orig. Size
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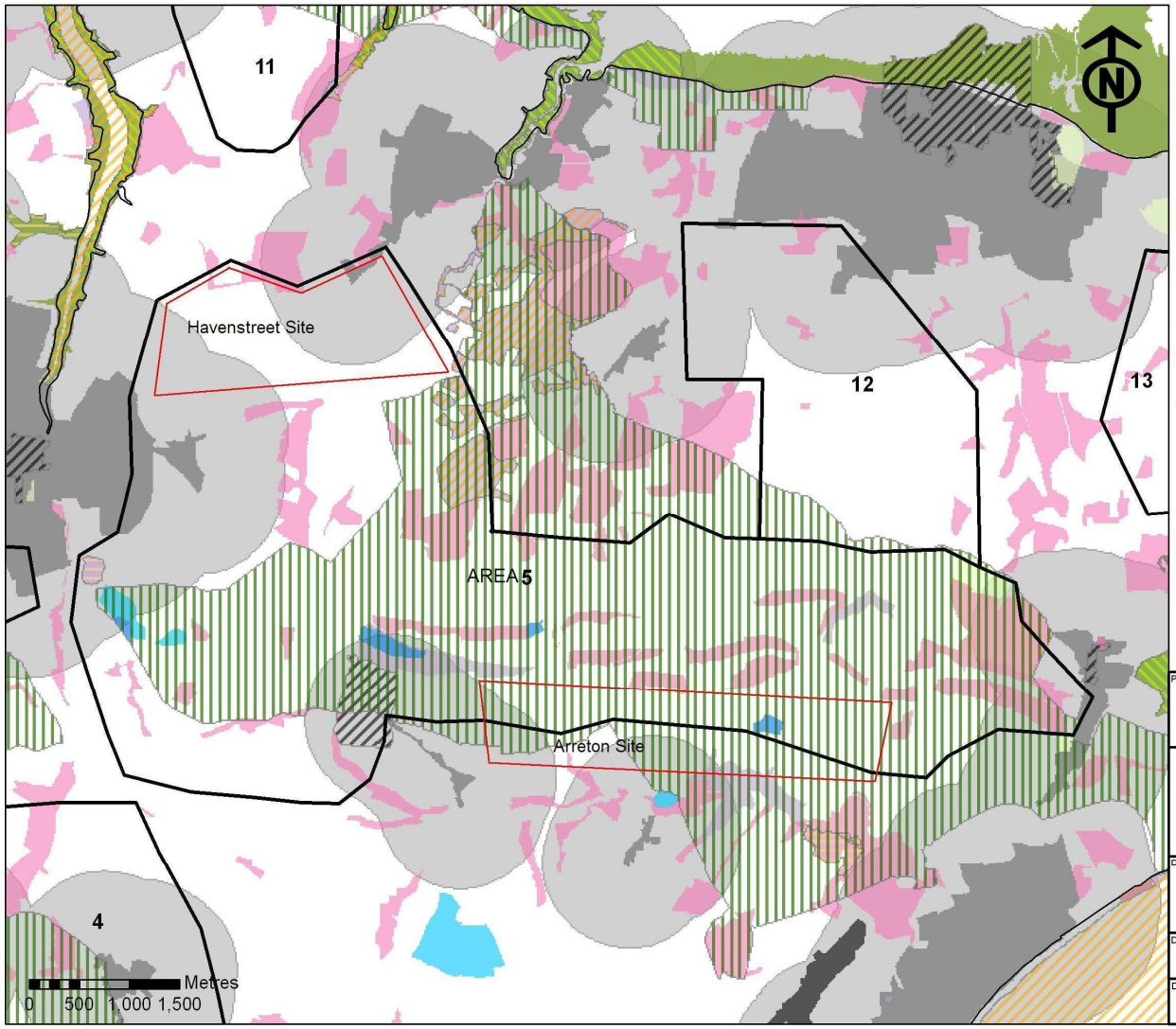

- Areas of Search
- AONB
- SPAs
- SACs
- Ramsar Sites
- SSSIs
- National Nature Reserves
- Local Nature Reserves
- SINCs
- Historic Park or Garden
- RIGGs
- Mineral Sites
- Proposed Mineral Sites
- Airports
- Urban Area
- 800m from Urban Area
- Conservation Area
- Sites

Project.	Windfarm Areas of Search
	URS ENVIRONMENTAL CONSULTING
Drg. Title	Area 5 East Newport
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Rev.	B
Date	29/08/08
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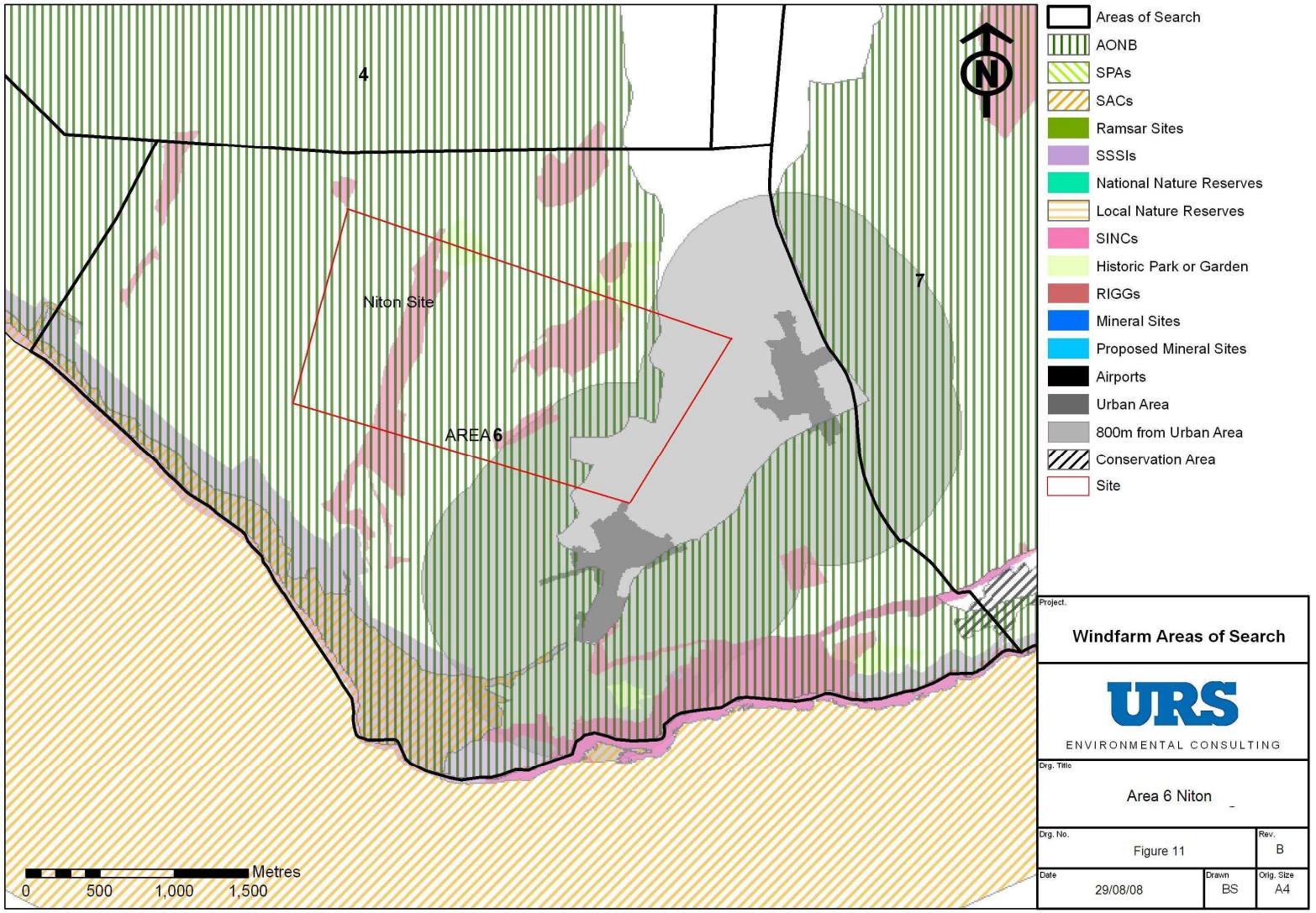
Orig. Size	A4


4
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Niton Site
AREA 6
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Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
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Metres
Project.
Windfarm Areas of Search
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ENVIRONMENTAL CONSULTING
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Area 6 Niton
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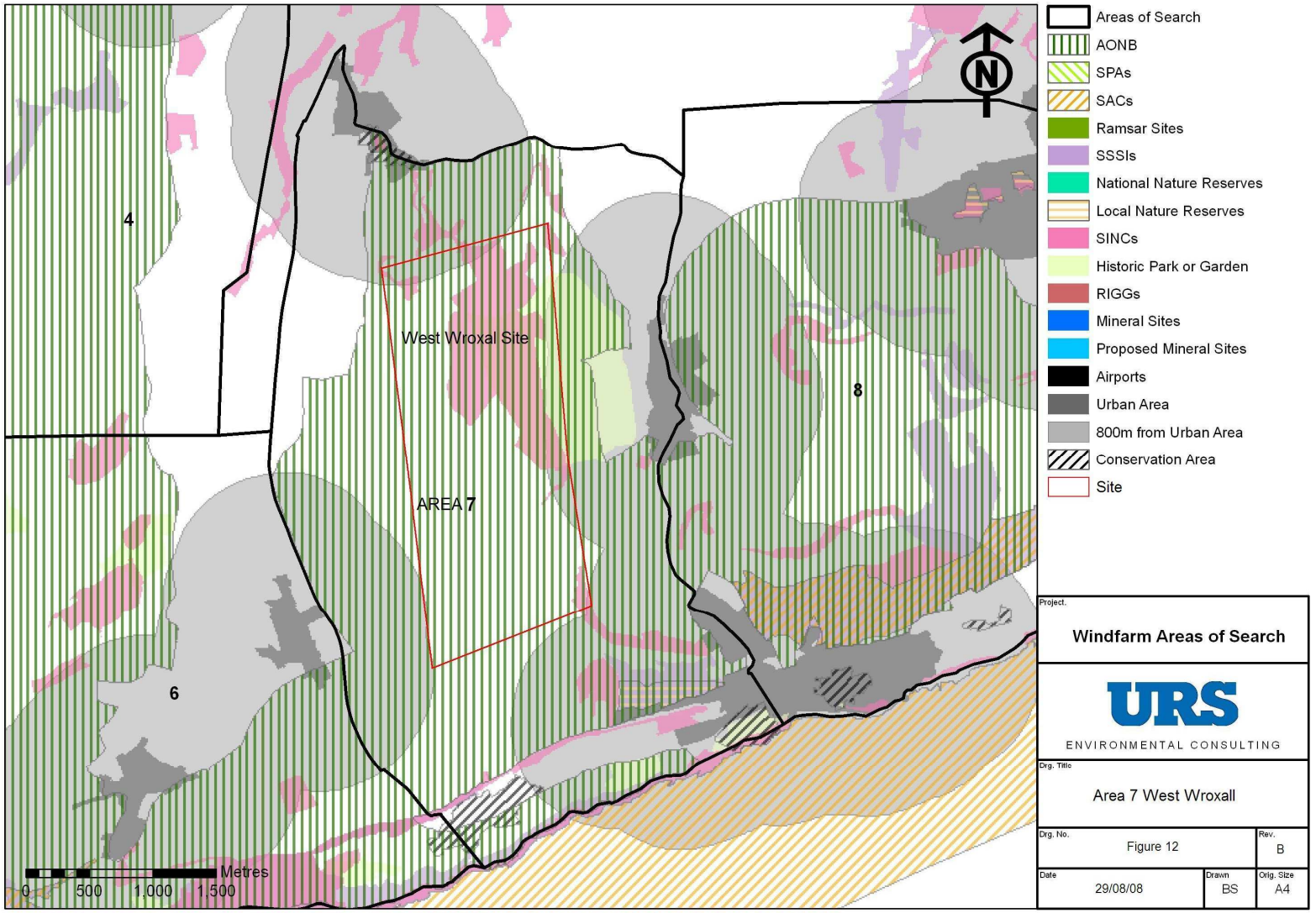
4
6
8
West Wroxal Site
AREA 7
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500
1,000
1,500
Metres
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 7 West Wroxall
Drg. No.
Figure 12
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B
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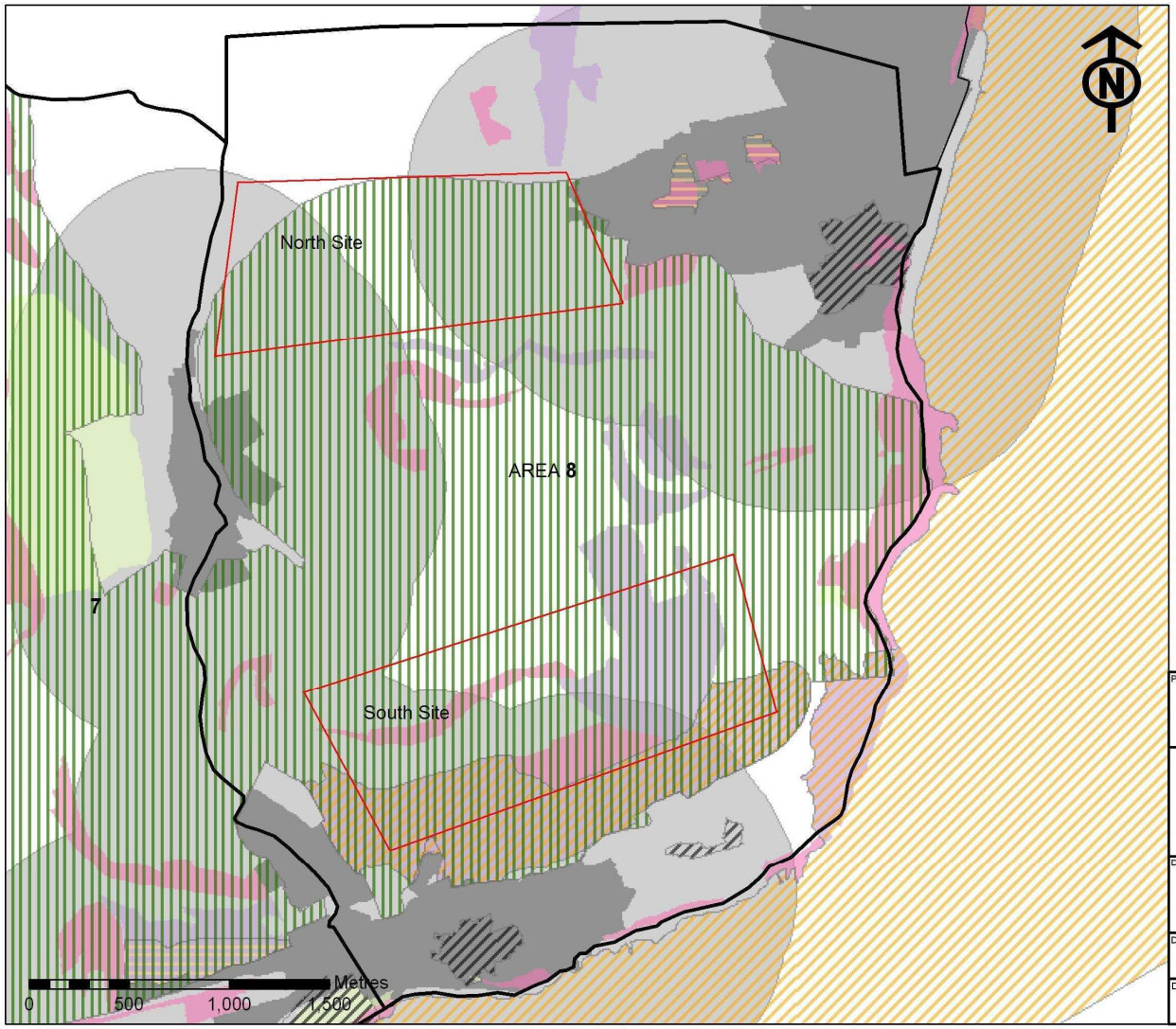
Orig. Size
A4



- Areas of Search
- AONB
- SPAs
- SACs
- Ramsar Sites
- SSSIs
- National Nature Reserves
- Local Nature Reserves
- SINCs
- Historic Park or Garden
- RIGGs
- Mineral Sites
- Proposed Mineral Sites
- Airports
- Urban Area
- 800m from Urban Area
- Conservation Area
- Site

Project. **Windfarm Areas of Search**		
URS ENVIRONMENTAL CONSULTING		
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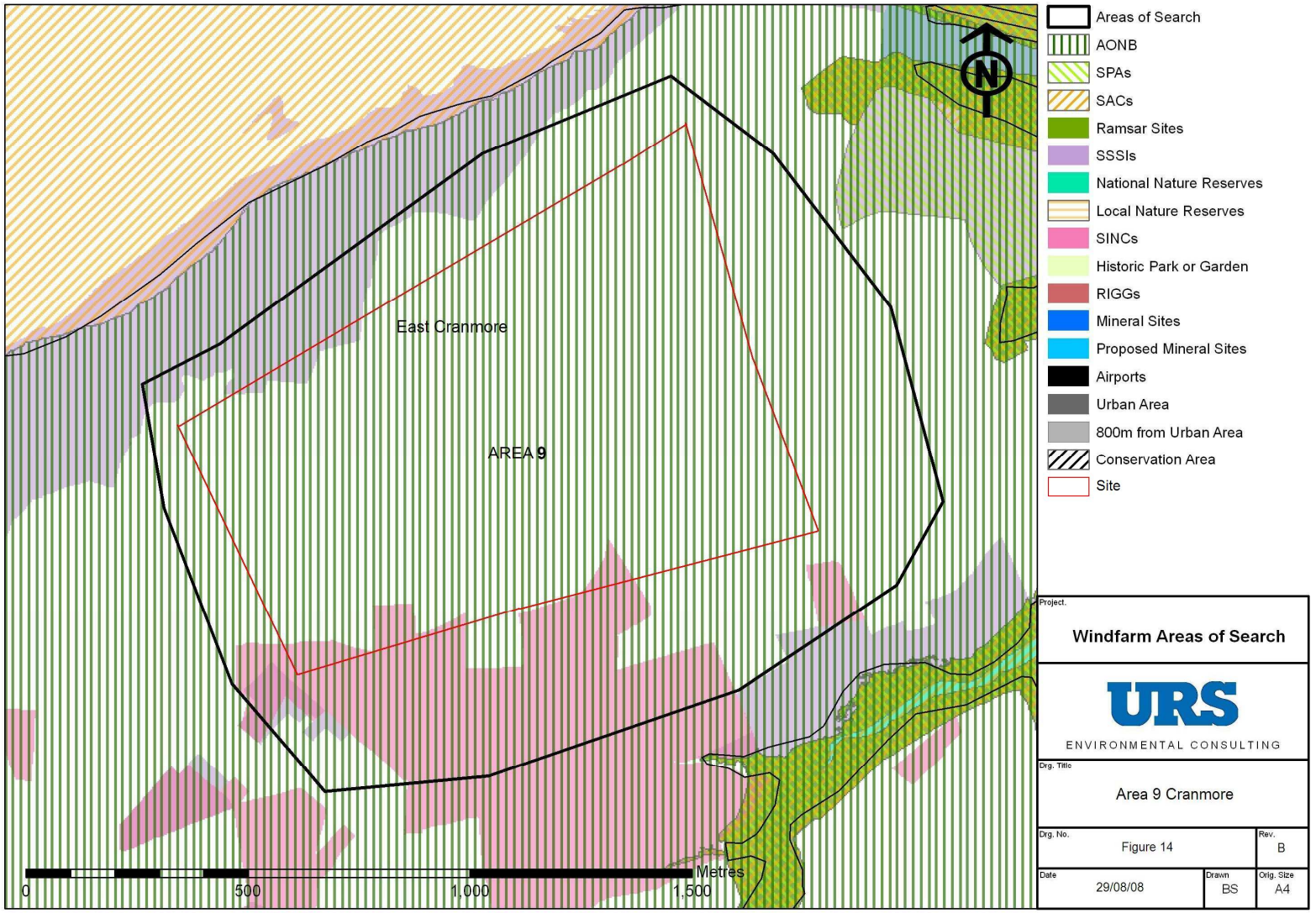
Drg. No.: Figure 13		Rev.: B
Date: 29/08.08	Drawn: BS	Orig. Size: A4


East Cranmore
AREA 9
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1,000
1,500
Metres
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 9 Cranmore
Drg. No.
Figure 14
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B
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29/08/08
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BS
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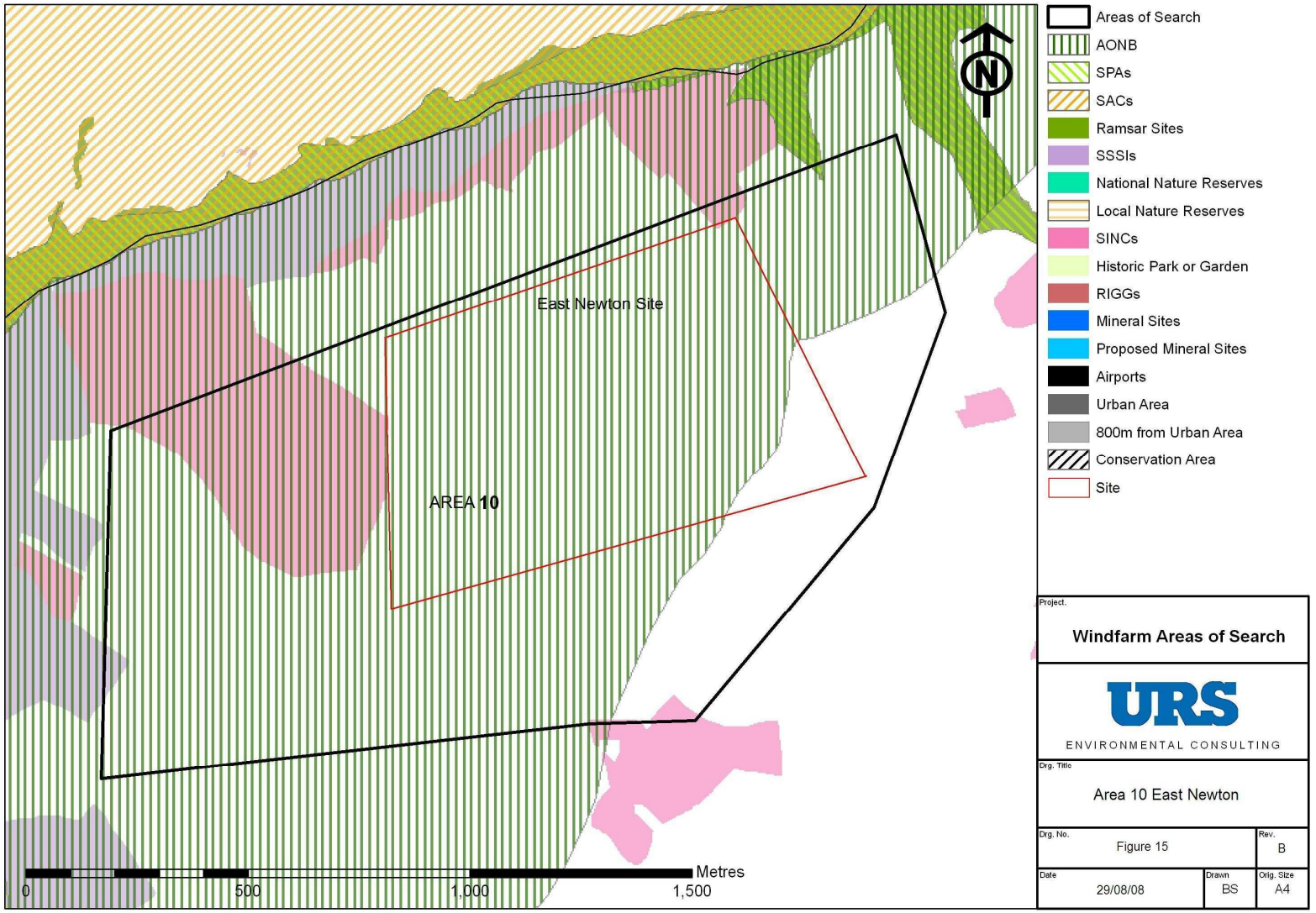
A4


East Newton Site
AREA 10
N
0
500
1,000
1,500
Metres
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 10 East Newton
Drg. No.
Figure 15
Rev.
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29/08/08
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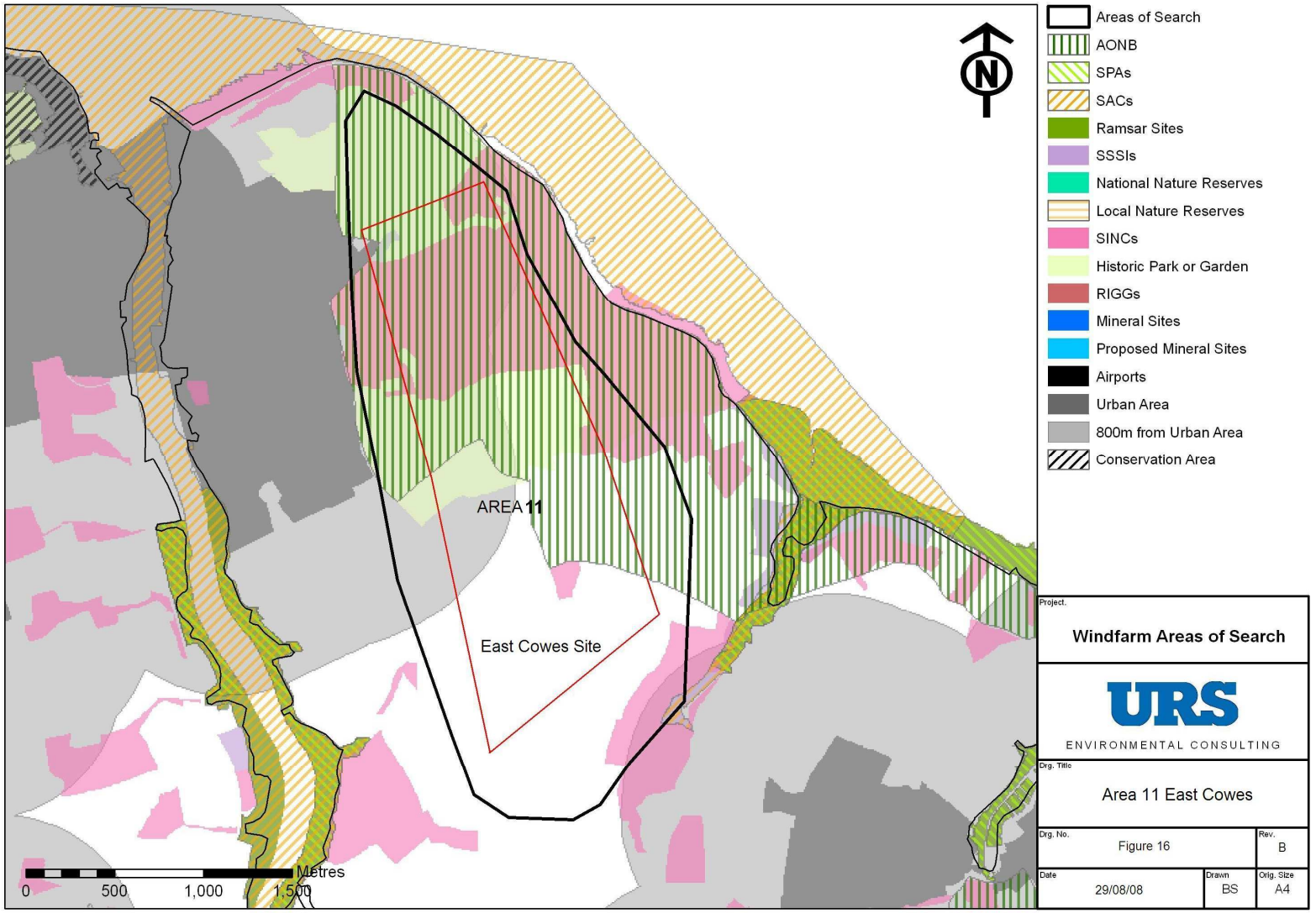
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
AREA 11
East Cowes Site
0
500
1,000
1,500
Metres
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 11 East Cowes
Drg. No.
Figure 16
Rev.
B
Date
29/08/08
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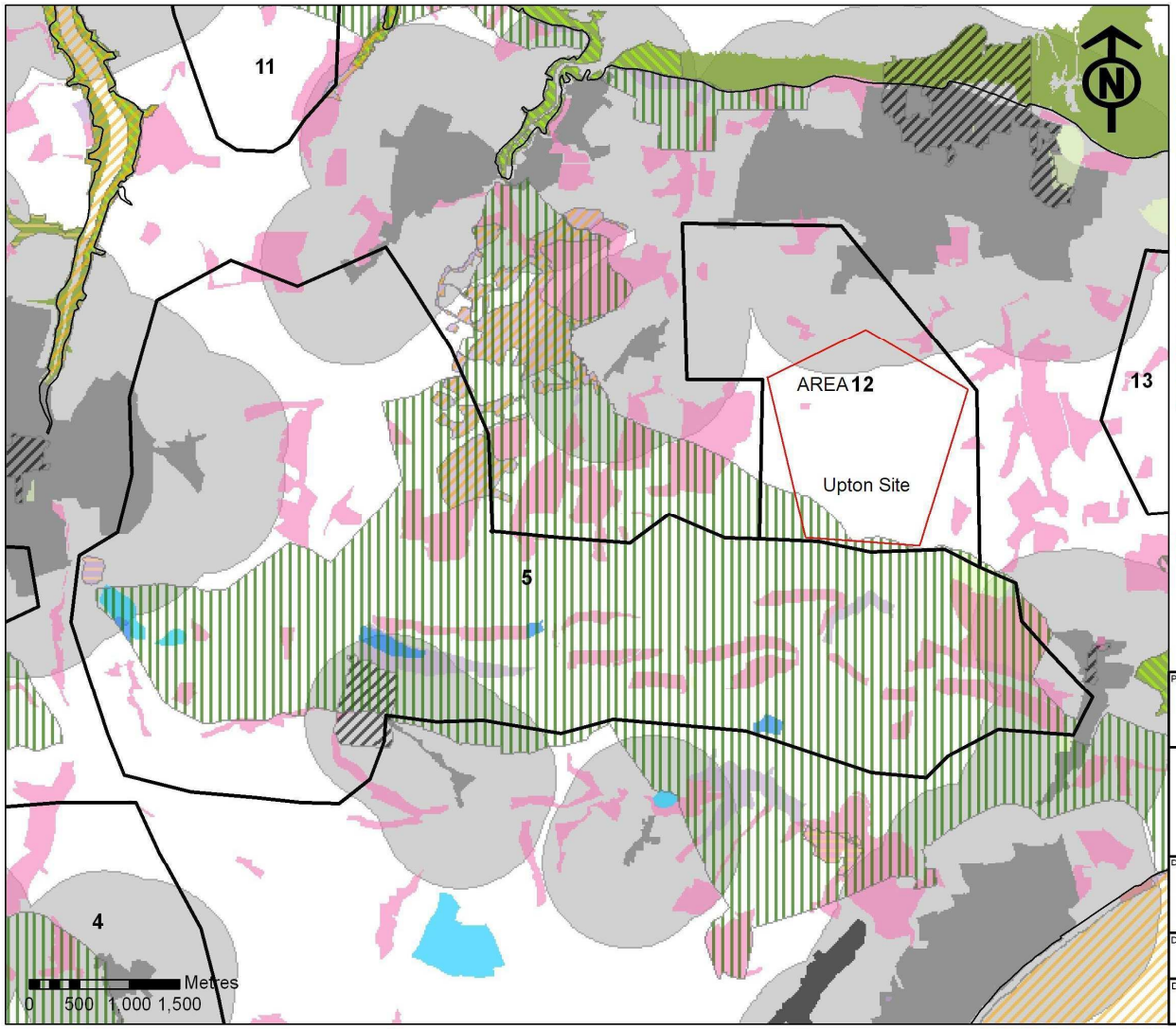
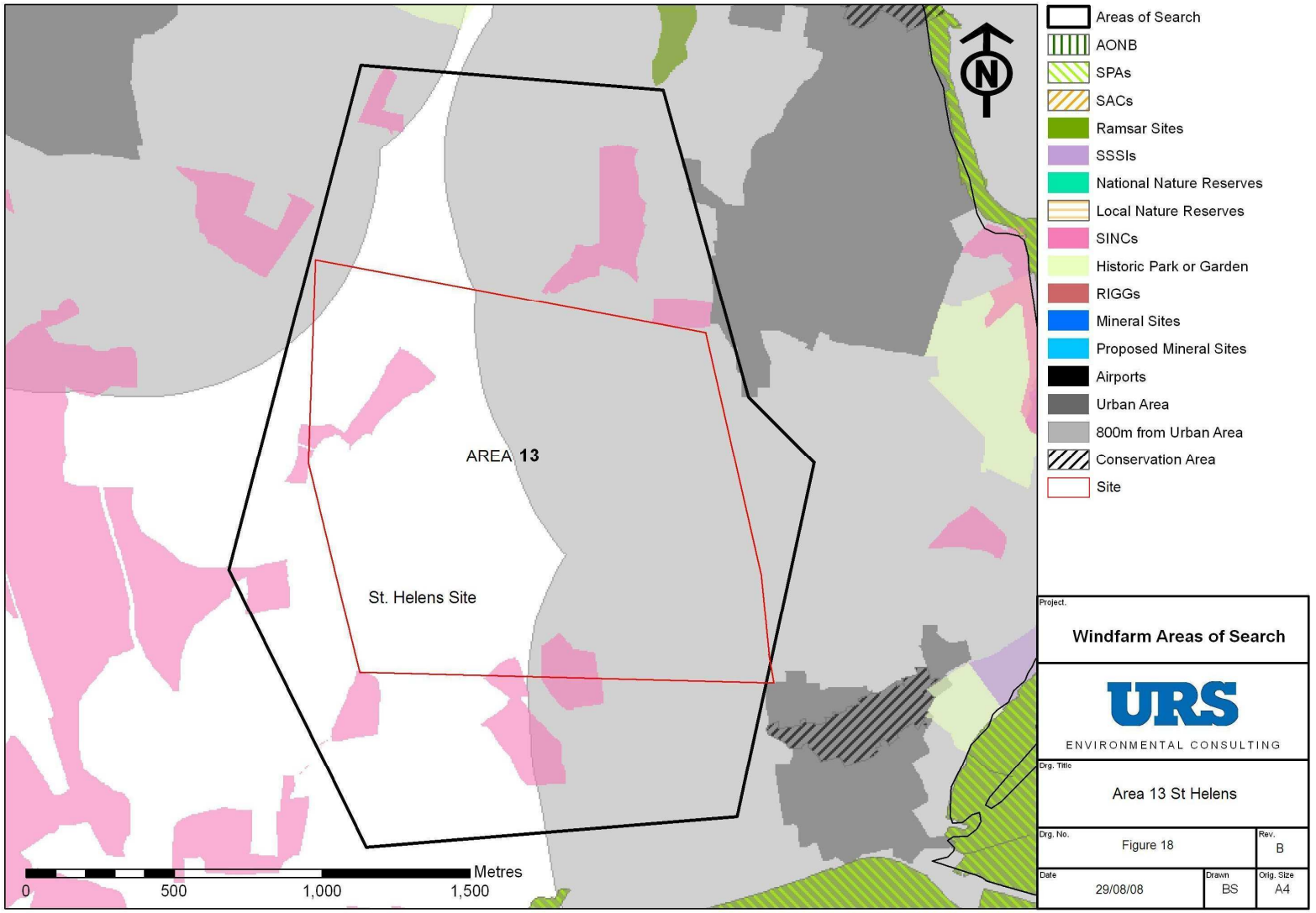


- Areas of Search
- AONB
- SPAs
- SACs
- Ramsar Sites
- SSSIs
- National Nature Reserves
- Local Nature Reserves
- SINCs
- Historic Park or Garden
- RIGGs
- Mineral Sites
- Proposed Mineral Sites
- Airports
- Urban Area
- 800m from Urban Area
- Conservation Area
- Site

Project.	Windfarm Areas of Search	
URS ENVIRONMENTAL CONSULTING		
Drg. Title	Area 12 Upton	
Drg. No.	Figure 17	Rev. B
Date 29/08/08	Drawn BS	Orig. Size A4


AREA 13
St. Helens Site
Metres
0
500
1,000
1,500
Areas of Search
AONB
SPAs
SACs
Ramsar Sites
SSSIs
National Nature Reserves
Local Nature Reserves
SINCs
Historic Park or Garden
RIGGs
Mineral Sites
Proposed Mineral Sites
Airports
Urban Area
800m from Urban Area
Conservation Area
Site
Project.
Windfarm Areas of Search
URS
ENVIRONMENTAL CONSULTING
Drg. Title
Area 13 St Helens
Drg. No.
Figure 18
Rev.
B
Date
29/08/08
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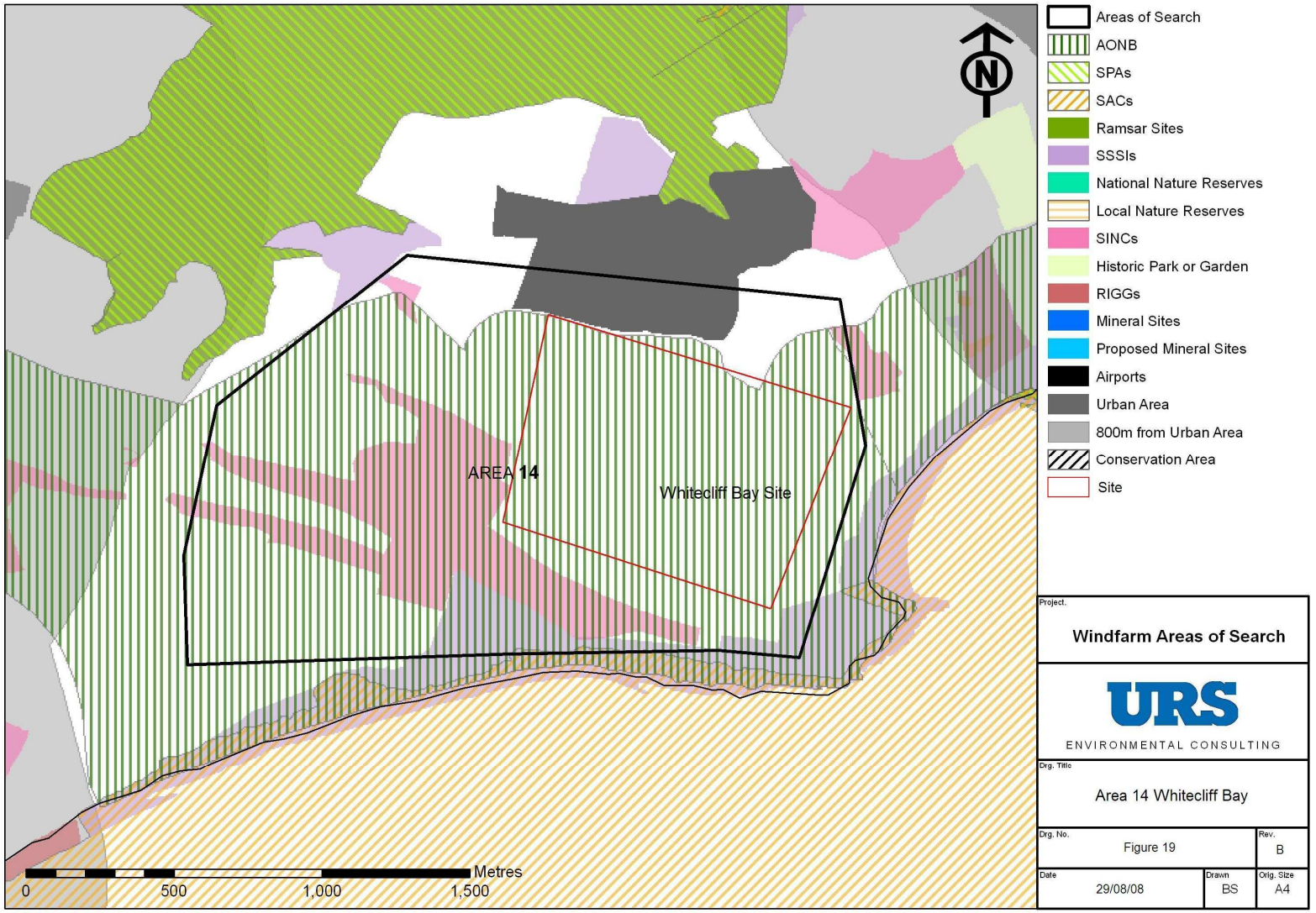
BS
Orig. Size
A4



Project.
Windfarm Areas of Search

URS
ENVIRONMENTAL CONSULTING

Drg. Title
Area 14 Whitecliff Bay

Drg. No.	Rev.
Figure 19	B

Date	Drawn	Orig. Size
29/08/08	BS	A4