Wind Energy Development Study (2025 Update)

South Tyneside Council

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1. PURPOSE OF THIS DOCUMENT

INTRODUCTION

1.1. Government guidance suggests that in order to manage new wind energy development each Local Authority should consider designated areas which are potentially suitable for wind energy development in their Local Plan.

1.2. Recent changes to national policy mean that suitable sites for wind energy development no longer have to be allocated in a development plan for development to be considered acceptable. Onshore wind energy development proposals will be treated the same as any other energy development proposal and considered on a case by case basis.

1.3. The purpose of this document is to provide an assessment of the extent and distribution of planning and environmental considerations that could affect the potential suitability of areas in South Tyneside for onshore wind energy development and to inform the suitability of proposed sites for wind energy development.

1.4. The methodology outlined in this document, responds to national policy and guidance regarding wind energy.

1.5. This report will set out the context for the identification of potential suitable areas for wind energy development from a climate change and policy perspective (Sections 2 & 3 respectively). Section 3 will outline the methodology used for the constraints mapping process, providing a justification for the buffers and separation distances used to identify areas with potential suitability for wind energy development. Section 4 outlines the constraint mapping outcomes.

1.6. Since the first version of this document (2022), an exercise was undertaken with Sunderland City Council to refine the accuracy of the Green Belt boundary around the International Advanced Manufacturing Park (IAMP). The mapping exercise for this study was updated to reflect the changes.

BACKGROUND

1.7. The Climate Change Act 2008 sets a target to reduce greenhouse gas emissions against 1990 levels to net zero by 2050. The development of renewable energy generation rather than using fossil fuels for energy generation is seen by Government as an important means of achieving this. This was reflected in the UK target for renewable energy generation of obtaining at least 15% of energy from renewable sources by 2020, which originates from the EU's Renewable Energy Directive (2009/08/EC). Wind, both onshore and offshore, was viewed by the Government as the main renewable resource to achieve this target (see UK Renewable Energy Strategy 2009).

1.8. South Tyneside Council is committed towards a sustainable future, striving towards carbon neutrality across Council buildings and operations by 2030. On 18th June 2019 South Tyneside Council declared a climate change emergency. We are implementing strategies that aim to:

- Make the Council carbon neutral by 2030;

- Move to cleaner, greener, renewable sources of energy; and,
- Enhance our natural environment

1.9. The Council's Climate Change strategy and action plan, 'Sustainable South Tyneside 2020-2025' identifies planning policy as a key driver for bringing about change and supporting reductions in emissions. Delivery Objective PO3 in the strategy and action plan aims to 'Encourage the adoption of policies that reflect the environment and climate emergency in the Council's emerging Local Plan'.

2. POLICY CONTEXT

2.1 There is a positive approach to renewable energy in national planning policy, which largely reflects wider policy aspirations relating to climate change mitigation and reducing emissions of greenhouse gases from energy production.

NATIONAL PLANNING POLICY

2.2 Previous iterations of the NPPF required that local planning authorities should only grant planning permission for wind energy development proposals if the development site is in an area identified as suitable for wind energy development, as identified in a Local or Neighbourhood Plan.

2.3 A Policy Statement on Onshore Wind on 8th July 2024 set out the Government's commitment to doubling onshore wind energy by 2030 and removed the policy tests requiring wind energy development to be in an area identified as suitable in a development plan.

2.4 National planning policy specifically relating to renewable and low carbon energy is set out in paragraphs 165 to 169 of the National Planning Policy Framework (NPPF) (2024). The NPPF states that plans should:

- Have a positive strategy to promote energy from renewable and low carbon sources that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);
- Consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and,
- Support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning.

2.5 The NPPF (paragraph 168) further sets out the approach to determining planning applications for renewable and low carbon development, citing that local planning authorities should:

- Not require applicants to demonstrate the overall need for renewable or low carbon energy and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and

  Para 169 Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

2.6 The NPPF makes explicit reference to the approach local planning authorities should take through their plans with regard to potential wind energy development. Paragraph 161 of the NPPF states that the planning system should "support the transition to a low carbon future in a changing climate…it should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."

PLANNING PRACTICE GUIDANCE

2.7 The National Planning Practice Guidance (PPG) Renewable and Low Carbon Energy (updated August 2023) suggests that when identifying suitable areas for renewable energy and in considering locations, local planning authorities will need to ensure they take into account the requirements of the technology and critically, the potential impacts on the local environment, including from cumulative impacts.

2.8 It reaffirms that, in the case of wind turbines, a planning application should not be approved unless the proposed development site is in an area identified as suitable for wind energy development and that suitable areas will need to have been allocated clearly in a Local Plan or Neighbourhood Plan.

2.9 The PPG provides guidance to the approach that local planning authorities should take when identifying potential suitable areas. However, it makes clear that "there are no hard and fast rules about how suitable areas for renewable energy should be identified". The PPG suggests that when considering potential suitable locations, planning authorities should "ensure they take into account the requirements of technology and critically, the potential impacts on the local environment, including cumulative impacts. The views of local communities likely to be affected should be listened to."

2.10 In terms of technical considerations relating to the siting of wind turbines, the PPG gives the following examples:

- Site size;
- Proximity of grid connection infrastructure;
- Predicted wind resource;
- Air safeguarding;
- Electromagnetic interference; and
- Access for large vehicles.

2.11 Support for criteria-based policies is given in the PPG where they are clear and expressed positively. In shaping the criteria in local plans the PPG outlines the following factors that should be taken into account:

- the need for renewable or low carbon energy does not automatically override environmental protections;
- cumulative impacts, particularly in respect to landscape and local amenity;
- local topography;
- heritage assets and their setting;
- proposals in National Parks and Areas of Outstanding Natural Beauty, and in areas close to them where there could be an adverse impact on the protected area, will need careful consideration; and

- local amenity and its importance when making planning decisions.

2.12 In terms of buffer zones/separation distances between renewable energy development and other land uses, the PPG advises that otherwise acceptable renewable energy developments should not be ruled out through inflexible rules on buffer zones or separation distances. Distance is part of the assessment but the local context such as the topography, the local environment and near-by land-uses are also important. Set-back distances for safety are the exception to this.

SOUTH TYNESIDE LOCAL PLAN

2.13 South Tyneside Council is currently preparing a new Local Plan document for the Borough. It will include the planning policies that will be used to guide development proposals and determine future planning applications in South Tyneside, detail the scale and distribution of new development and include land allocations and designations.

2.14 This study forms part of the evidence base to inform the policy approach set out in Policy IN4: 'Renewables and Low Carbon Energy Generation', to onshore wind energy development in the Plan, specifically in respect to the identification of potentially suitable areas for this type of development.

3. METHODOLOGY

3.1 This section outlines the methodological approach applied to establish the potential suitable locations for wind turbines in South Tyneside, through the application of constraints mapping.

3.2 There are no established wind turbine size ranges. Renewable UK defines small-medium wind turbines as those below 55 metres, that power many UK homes, farms and businesses. They define medium height turbines as those up to 55m tall including the blades. Larger-scale wind turbines are defined as those which consist of turbines with towers/hubs up to 75m with rotor blades 30-80m in diameter. As there are no set wind turbine height ranges adopted, the heights used in this report are based on existing turbines and planning applications in the Borough.

Wind Turbine Height Range Name	Wind Turbine Heights used in this report
Micro	20m
Small	32.5m
Medium	77m
Large	129m

Table 1 Wind turbine height ranges

CONSTRAINTS

3.3 The location and design of wind energy development can be constrained by a wide range of factors. Some of these can be readily mapped using data and modelling in Geographic Information Systems (GIS). Other factors are more difficult to model or can only be assessed on the basis of detailed site-specific investigations. Mapping data in GIS has its technical limitations but can give a useful understanding of the spatial distribution of development constraints. Constraints mapped in this study are shown below in Table 2.

3.4 Constraints have been modelled based on a mid-point height for a range of wind turbine heights. The mid-point height should not be used instead of the recommended calculation, which should always be applied for each turbine proposal that is being determined. For the purposes of large 100m+ turbines, a mid-point of 115m has been applied for mapping purposes.

Constraint	Mapped feature	Justification
Wind Speeds	Areas above 5m/s at 45 meters above ground level.	The Department of Energy and Climate Change produced a methodology in 2019 which recommended applying a lower limit of 5m/s measured at 45m above ground level to ensure optimum wind speeds and turbine scheme feasibility.
Landscape designations	**South Tyneside Landscape Character Study Part 3 recommendations. See Table 3.**	Reflects recommendations in the South Tyneside Landscape Character Study Part 3.

Heritage Assets	Exclude: -World Heritage Sites -Conservation Areas -Scheduled Ancient Monument -Parks and gardens	National Planning Policy Framework.
Residential Properties	Buffer of 3 x turbine height to reduce impact on villages	Based on distance of existing turbines from residential development
Ecology	**Exclude:** - SSSI - SAC/SPA/RAMSAR - LWS	Various protections including Wildlife & Countryside Act 1981, Natural Environment & Rural Communities Act 2006 and the 2019 National Planning Policy Framework.
Infrastructure	**Railways, motorways, trunk roads:** Setback 1.5 turbine height	Reflects Department of Transport guidance. This reflects the potential consequences of toppling and debris scatter to nationally important infrastructure
	A and B Roads: Turbine height + 10%	Reflects previous government advice (Planning for Renewable Energy: A companion Guide to PPS22, paragraph 53) of 'at least fall over distance'.
	Power lines: Turbine height + 10%	Reflects the utilities provider recommendations.
	Footpaths and Bridleways: Setback 1.5 turbine height	The value of 1.5 x turbine height from routes is influenced by the advice of the British Horse Society and safety measures required for public rights of way which usually adopt the value of rotor radius plus set back, to avoid rotors over sweeping paths.
	Watercourses: Exclude	Watercourses are excluded due to the physical constraint.
Green Belt	Avoid designated Green Belt for all wind turbines >20m in height.	The National Planning Policy Framework states that development of wind turbines can affect the openness of the Green Belt and may constitute inappropriate development. This is to be considered on a case-by-case basis.
30km zone Newcastle Airport	This will be considered as part of this study, but not act as a showstopper to development.	
Protected Wildlife Species	Need to be considered on a case-by-case basis.	To be considered on a case-by-case basis.

Table 2 Constraints to Wind Energy Development

WIND SPEED

3.5 In order for a wind turbine to be economically viable, it is necessary that these sites are in locations where the wind speed is sufficient to rotate the rotary blade. With wind turbines the mean wind speed at hub height will determine the energy captured at a site.

3.6 The PPG does not prescribe wind speed limits to apply in the assessment of potential locations for wind turbine development, so it is necessary to establish a limit for South Tyneside through a review of previous guidance and methodologies.

3.7 The Department of Energy and Climate Change produced a methodology in 2010 which recommended applying a lower limit of 5m/s measured at 45m above ground level to ensure optimum wind speeds and turbine scheme feasibility. Combined with data mapped by the Government's Numerical Objective Analysis Boundary Layer (NOABL) Wind Map, local authorities can observe estimated predictions for wind speeds at 45 metres above ground level, across 1km distances within the UK. This data is not presented at local authority level but does provide an indication of wind speeds within a 1km boundary.

3.8 Figure 1 presents a screenshot from the NOABL Wind Map, which demonstrates that the 5m/s wind speed limit can be observed across the entire Borough, with higher wind speeds sustained in the coastal areas and parts of West Boldon identified in red. There are no locations in South Tyneside, therefore, that can be excluded solely on the basis of wind speed feasibility.

LANDSCAPE DESIGNATIONS

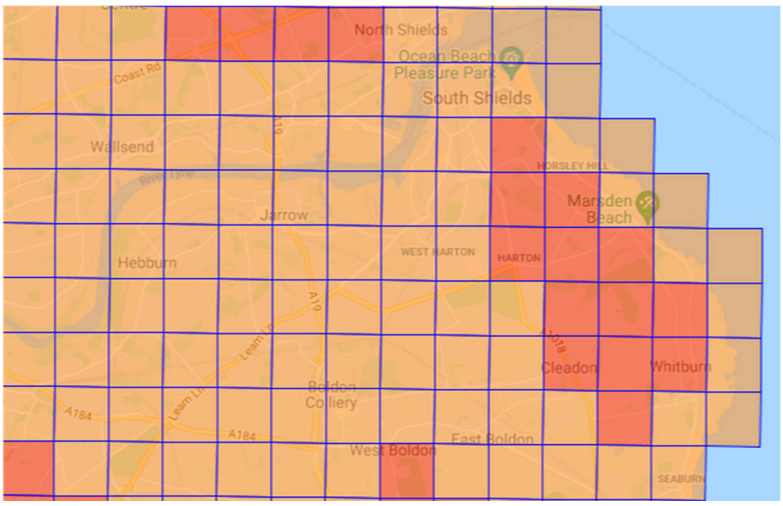

Figure 1 Wind speeds at 45m above ground level

3.9 The South Tyneside Landscape Character Study, Part 3: Application of the Character Assessment (March 2012) assesses the sensitivity of the landscape to specific types of development, including wind power development.

3.10 The study focused primarily on proposals for single turbines, although there may be potential for two or three-turbine schemes to come forward. Turbines below 30m were not considered, since their landscape and visual impacts are likely to be more limited,

particularly in urban areas. Therefore no areas were excluded from the mapping for micro turbines based solely on landscape considerations.

3.11 Table 3 below outlines which landscape character areas could accommodate wind turbines based on the recommendations in the Landscape Character study. Areas outside of those character areas outlined below were excluded from the mapping.

Landscape character area	Micro turbines	Small turbines	Medium turbines	Large turbines
1, Hebburn Riverside	✓	✓		
7, Jarrow Riverside	✓	✓	✓	✓
13, Tyne Dock	✓	✓	✓	✓
14, South Shields Riverside	✓	✓	✓	✓
30, Monkton Fell	✓	✓	Monkton business park and restored quarry	Monkton business park and restored quarry
31, Boldon Fell	✓	✓	✓	✓
32, Boldon Downhill	✓	Central and eastern parts		
33, Boldon Flats and Whitburn Moor	✓	✓	✓	
34, Boldon and Cleadon fragmented farmland	✓	✓		

Table 3 Landscape Character designations

HERITAGE ASSETS

3.12 The NPPF makes clear that the loss or harm to designated heritage assets from development within its setting should be resisted unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits. On this basis, the designated areas of scheduled ancient monuments, conservation areas and historic parks and gardens have been accounted for as a constraint in the mapping process. However, the effects on the setting area is a matter for detailed assessment, therefore no separation distances have been identified from the boundary of the designation.

3.13 Turbine effects on the setting of a heritage designation and the substantial harm or public benefit it may have, will depend on the size and scale of the wind turbine proposal, which are matters for consideration when determining a planning application. Therefore, land identified as “potential suitability” for wind energy development within the setting of these designations, is not guaranteed planning permission and must conform to policy requirements, so that no significant harm to these designated heritage assets occurs.

3.14 Listed buildings are not mapped as a constraint as an effect on their setting is a matter for detailed assessment. Parks and Gardens of Local Interest are not mapped as a constraint as the designation includes a wide range of features and effects on their fabric or setting is a matter for detailed assessment.

RESIDENTIAL

3.15 In terms of buffer zones/separation distances between renewable energy development and other land uses, the PPG advises that otherwise acceptable renewable energy developments should not be ruled out through inflexible rules on buffer zones or separation distances. Distance is part of the assessment but the local context such as the topography, the local environment and near-by land-uses are also very important. However, set-back distances for safety are the exception to this.

3.16 Fall over distance, the height of the turbine to the tip of the blade, is often used as a safe separation distance between buildings and wind turbines. The PPG suggests a fall over distance plus 10% as a safe separation distance, however this does not take into account expected noise levels or visual impact of a turbine.

3.17 The impacts of noise and visual amenity will depend on the size and scale of the wind turbine proposal. However, as a proxy for the distance within which effects of visual amenity and/or noise will often preclude development of turbines, a calculation of 3 times the turbine height has been applied to the constraints mapping at each address point for existing development. This distance is based on previous planning application decisions for wind turbines as outlined in Table 4 below.

Turbine	Turbine Height	Distance from residential	
Eco Centre Hebburn	45m	120m	2.6 x turbine height
Middlefields (old)	40m	200m	5 x turbine height
Middlefields (new) (not yet permissioned)	77m	220m	2.8 x turbine height
A&P Tyne	126.5m	280m	2.2 x turbine height
Greenbank Jarrow	12m	23m	2 x turbine height
King George's Fields	12m	94m	7.8 x turbine height
			Average = 3.7 x turbine height

Table 4 Existing turbine distances from residential development

3.18 Existing turbines in the Borough are an average 3.7 x turbine height from residential development. The average is pushed up by the turbine at King George's fields which was constrained by needing to feed into the streetlighting supply at only 1.5kW maximum, so is much smaller than the site would ordinarily allow. Taking this turbine out would give an average of 2.9 times turbine height. Therefore, for the purposes of this report, we have rounded up the average of 2.9 times turbine height to provide a buffer of 3 x turbine height.

ECOLOGY

3.19 European protected sites including Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), nationally designated sites including Sites of Special Scientific Interest (SSSIs), Local Wildlife Sites (LWS) have been identified and modelled as constraints. In most cases potential effects would preclude development within these areas, therefore the designations have been discounted.

RAILWAYS, MOTORWAYS AND TRUNK ROADS

3.20 The Department of Transport (DoT) and the Highways Agency recommend set back distances for wind turbines from the highway boundary of the turbine height +50 metres, or 1.5 times the wind turbine height, whichever is the lesser. This reflects the potential consequences of toppling and debris scatter to nationally important infrastructure, even though the risks are generally considered to be low. For the purposes of the constraints mapping, a calculation of 1.5 times the turbine height has been applied.

3.21 Network Rail do not advise on set back distances from the lineside. However, given their strategic transport function, the same set back distances have been applied to rail lines, as used for the Strategic Road Network.

A AND B ROADS

3.22 The PPG does not prescribe set back distances for A and B roads however the local road network requires set back distances to ensure safety for road users. Previous government guidance, Planning for Renewable Energy: A Companion Guide to Planning Policy Statement 22, referred to an acceptable set back distance as being “at least fall over distance”. Therefore, an appropriate buffer for the local road network has been applied to the constraints mapping, which is calculated based on the turbine height plus 10%.

POWER LINES

3.23 High voltage power lines can prove a constraint to the location of wind turbines. Whilst wind turbine toppling is a low risk, the potential siting of a turbine could cause effects to high voltage infrastructures. Wake downwind of a turbine affects wind speeds and can have significant effects on overhead line conductors if not considered fully, potentially causing levels of motion and in extreme cases, conductor clashing. In line with utility providers advice, high voltage power lines have been considered and a buffer calculated using the turbine height plus 10% has been applied.

FOOTPATHS AND BRIDLEWAYS

3.24 There is no statutory separation distance or guidance issued citing best practice for separation distances from public rights of way. In regard to bridleways, some guidance is available on the matter, however this is non statutory guidance, produced by the British Horse Society to assist developers and planners to plan for wind turbines. The guidance recommends that 3x turbine height from equestrian routes or 200m, whichever is the greater, would be appropriate separation distances to apply to equestrian routes. However,

the British Horse Society acknowledges that every site is different and a blanket approach to all situations may be excessively restrictive for some sites.

3.25 Taking account of the variation in guidance and the individual environmental and site considerations that should be considered when assessing a site's suitability for wind energy, the Council does not consider it appropriate to apply an overly restrictive separation distance at this stage of the process, when such matters will be considered at the detailed planning application stage. Therefore, a separation distance of 1.5x the turbine height, has been applied.

GREEN BELT

3.26 South Tyneside's Green Belt forms part of the wider Tyne and Wear Green Belt and covers around 33% of the Borough. The NPPF sets out the purposes of Green Belt within paragraph 143 as:

- To check the unrestricted sprawl of large built up areas;
- To prevent neighbouring towns merging into one another;
- To assist in safeguarding the countryside from encroachment;
- To preserve the setting and special character of historic towns; and
- To assist in urban regeneration, be encouraging the recycling of derelict and other urban land.

3.27 The NPPF makes provision for exceptions to development in the Green Belt. Engineering operations are listed as appropriate, providing they preserve the Green Belt's openness and do not conflict with the purposes of including land within it. The NPPF further goes on to state that elements of many renewable energy projects will comprise inappropriate development. However, in such cases developers will need to demonstrate very special circumstances if projects are to proceed, including the wider environmental benefits associated with increased production of energy from renewable sources.

3.28 Given that wind turbine development could have a harmful effect on the Green Belt, it was considered appropriate to include Green Belt as a constraint. Any proposals for wind turbine development would have to demonstrate very special circumstances as outlined in the NPPF.

NEWCASTLE AIRPORT

3.29 There is a 15 kilometre (km) consultation zone and 30km advisory zone around every civilian air traffic radar, although objections can be raised to developments that lie beyond the 30km advisory zone. Wind turbines may have an adverse effect on air traffic movement and safety. They may represent a risk of collision with low flying aircraft or they may interfere with the proper operation of radar and aircraft instrument landing systems.

3.30 The 30km advisory zone covers the entirety of South Tyneside. This constraint does not constitute a showstopper for wind turbine development in South Tyneside however consultation with Newcastle Airport would be required should a wind turbine application be submitted to avoid adverse impacts on air traffic movement and safety.

MATTERS EXCLUDED FROM THE MAPPING EXERCISE

3.31 Mapping data in GIS has its technical limitations. If the data for a particular planning or environmental consideration is not available in an appropriate form or is not of an appropriate quality it cannot be readily mapped. In addition, there are some planning and environmental considerations that are matters for detailed assessment on a site by site basis as part of any subsequent planning application.

3.32 Some examples of the considerations that have not been mapped in this study include:

- Presence of protected species;
- Listed buildings and their settings;
- Settings of designated and non-designated heritage assets;
- Non-designated heritage assets;
- Aviation operations and navigational systems;
- Electricity grid connection and grid capacity;
- Stand-off distance to water courses and water features and vegetation such as trees;
- Air and water quality;
- Landscape capacity.

4. OUTCOMES OF THE CONSTRAINTS MAPPING – STAGE 1

4.1 The combined effects of the constraints identified in section 3 of this report were then applied to the four wind turbine size groups for consideration and presented below (Figures 2 to 5). Tables 5 to 8 identify the constraints mapping buffers applied to each constraint. Visual impacts and potential cumulative effects of wind turbine development have not been modelled with the constraints.

4.2 Wind turbines below 11.1 metres are exempt from this analysis. Sensitivity and constraints for micro turbines have not been assessed as building-mounted and stand-alone wind turbines of this size (<11.1m) benefit from permitted development rights other than in particular circumstances including within the curtilage of a Listed Building, within a site designated as a Scheduled Monument or on designated land (including Areas of Outstanding Natural Beauty and World Heritage Sites) other than Conservation Areas.

4.3 The shaded areas on these maps are the areas that have planning and environmental considerations that mean in principle they would not be suitable for wind energy development. The areas shown in white within the plan area are those areas where the planning and environmental constraints included in this exercise are not applicable and therefore represent areas that could be potentially suitable for wind energy development of that scale.

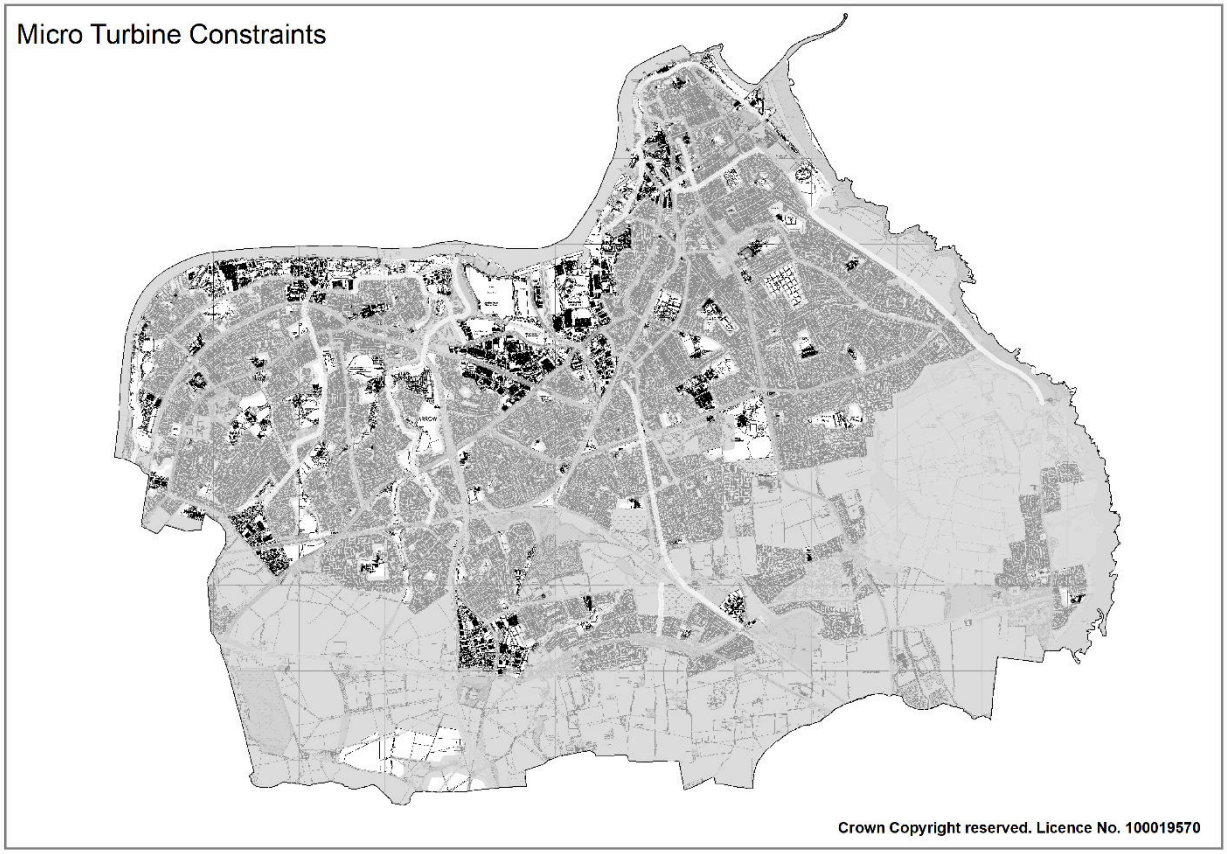

Figure 2 Micro turbine constraints

Constraint	Assumption	Micro Turbine Buffer
Landscape designations	Avoid areas not identified in Landscape Character Assessment as potentially suitable	0m – designation only
Heritage assets	Avoid -World Heritage Sites -Conservation Areas -Scheduled Ancient Monument -Parks and gardens	0m- designation only
Residential development	3 x turbine height	60m
Ecology	Avoid SSSI SAC/SPA/RAMSAR/LWS	0m – designation only
Railways, motorways, trunk roads	1.5 turbine height	30m
A and B roads	Turbine height + 10%	22m
Power lines	Turbine height + 10%	22m
Footpaths and bridleways	1.5 x turbine height	30m
Watercourses	Avoid watercourse	0m – designation only

Table 5 Micro turbine constraints

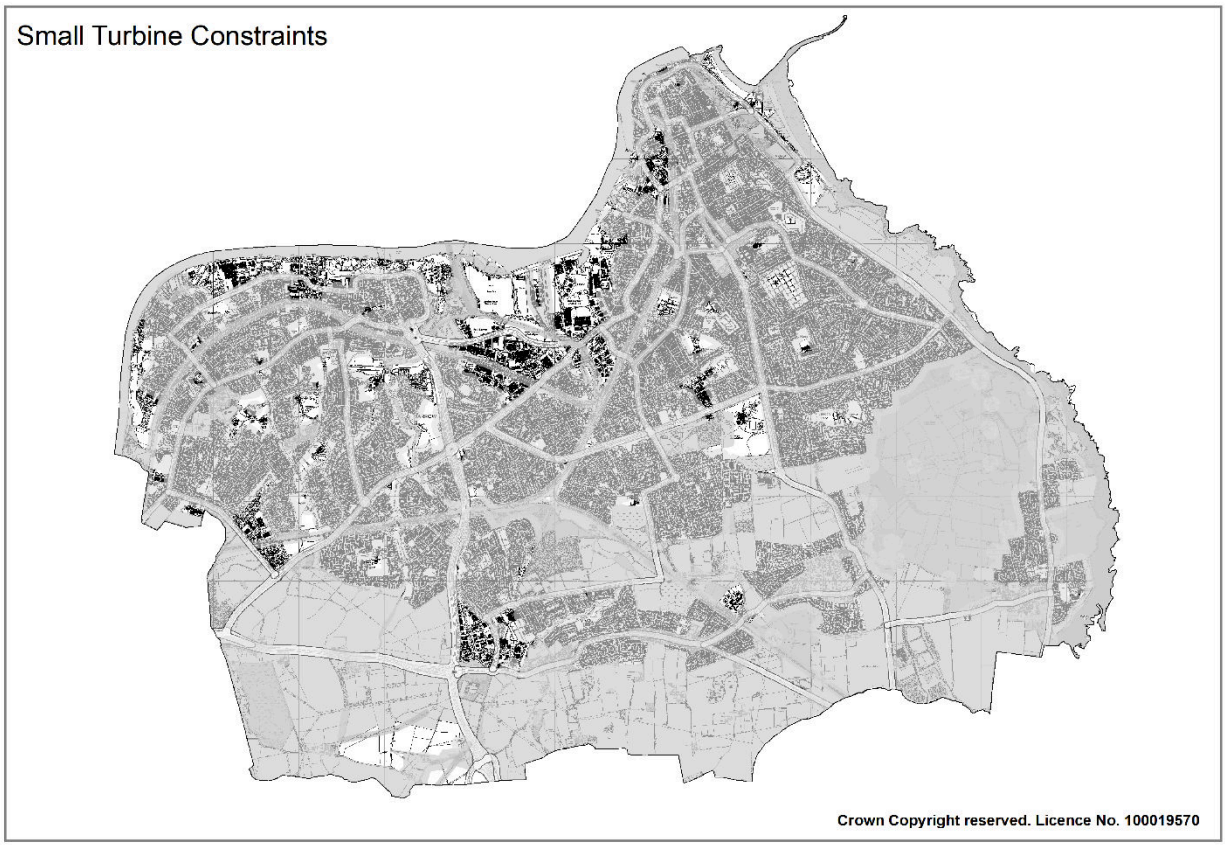

Figure 3 Small turbine constraints

Constraint	Assumption	Small Turbine Buffer
Landscape designations	Avoid areas not identified in Landscape Character Assessment as potentially suitable	0m – designation only
Heritage assets	Avoid -World Heritage Sites -Conservation Areas -Scheduled Ancient Monument -Parks and gardens	0m- designation only
Residential development	3 x turbine height	97.5m
Ecology	Avoid SSSI SAC/SPA/RAMSAR/LWS	0m – designation only
Railways, motorways, trunk roads	1.5 turbine height	48.75m
A and B roads	Turbine height + 10%	35.75m
Power lines	Turbine height + 10%	35.75m
Footpaths and bridleways	1.5 x turbine height	48.75m
Watercourses	Avoid watercourse	0m – designation only

Table 6 Small turbine constraints

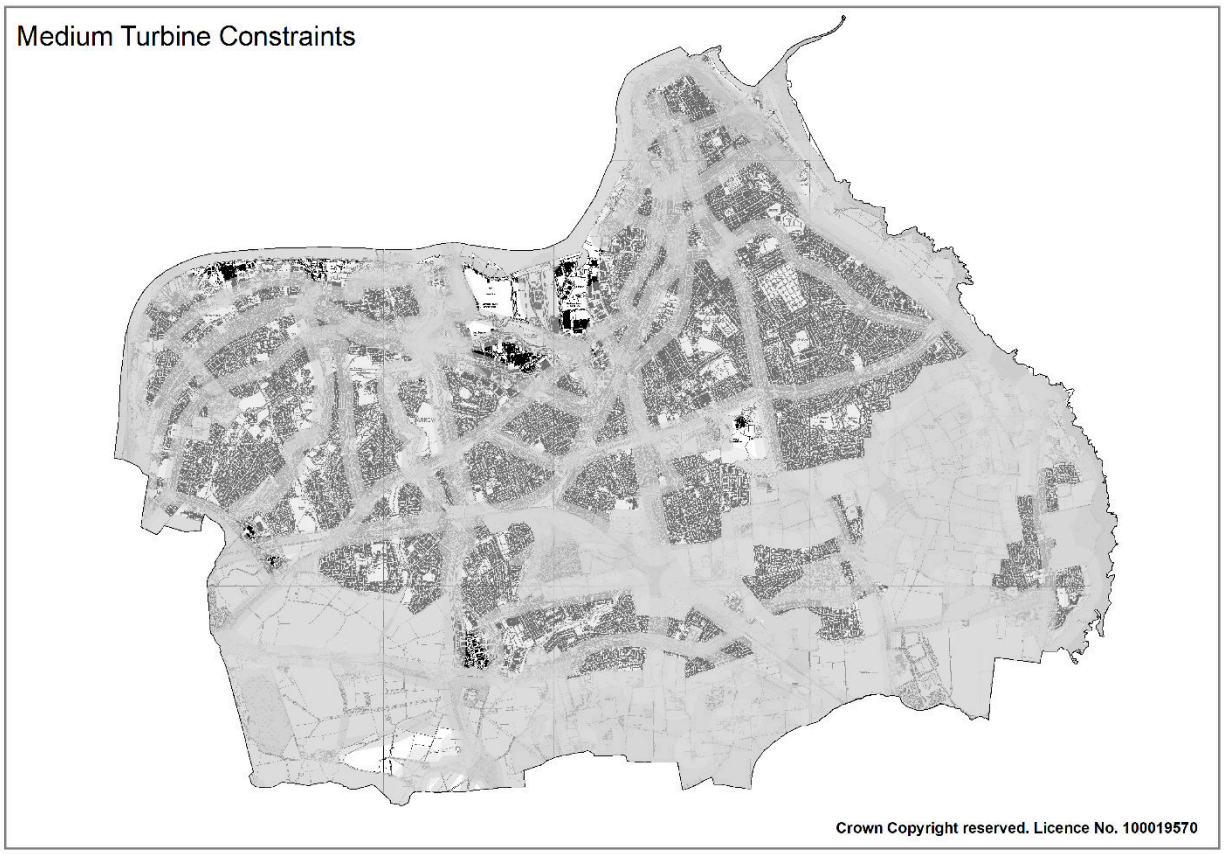

Figure 4 Medium turbine constraints

Constraint	Assumption	Medium Turbine Buffer
Landscape designations	Avoid areas not identified in Landscape Character Assessment as potentially suitable	0m – designation only
Heritage assets	Avoid -World Heritage Sites -Conservation Areas -Scheduled Ancient Monument -Parks and gardens	0m- designation only
Residential development	3 x turbine height	231m
Ecology	Avoid SSSI SAC/SPA/RAMSAR/LWS	0m – designation only
Railways, motorways, trunk roads	1.5 turbine height	115.5m
A and B roads	Turbine height + 10%	84.7m
Power lines	Turbine height + 10%	84.7m
Footpaths and bridleways	1.5 x turbine height	115.5m
Watercourses	Avoid watercourse	0m – designation only

Table 7 Medium turbine constraints

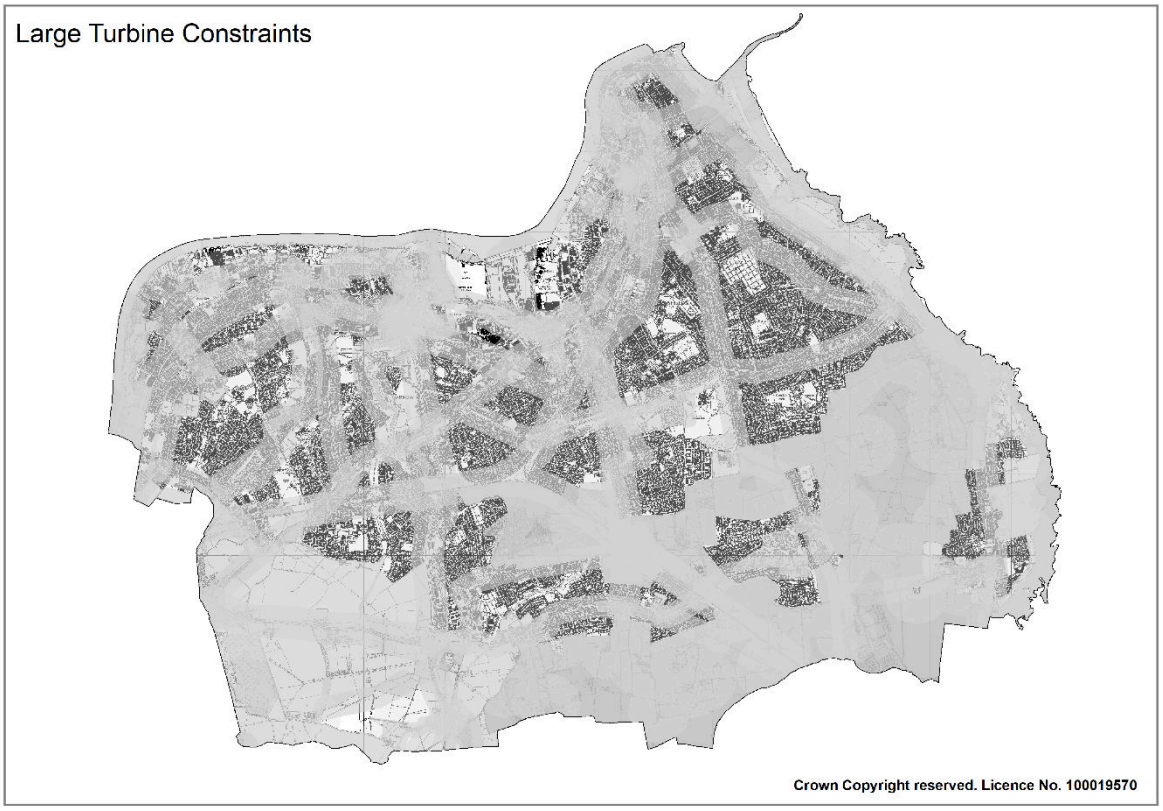

Figure 5 Large turbine constraints

Constraint	Assumption	Large Turbine Buffer
Landscape designations	Avoid areas not identified in Landscape Character Assessment as potentially suitable	0m – designation only
Heritage assets	Avoid -World Heritage Sites -Conservation Areas -Scheduled Ancient Monument -Parks and gardens	0m- designation only
Residential development	3 x turbine height	387m
Ecology	Avoid SSSI SAC/SPA/RAMSAR/LWS	0m – designation only
Railways, motorways, trunk roads	1.5 turbine height	193.5m
A and B roads	Turbine height + 10%	141.9m
Power lines	Turbine height + 10%	141.9m
Footpaths and bridleways	1.5 x turbine height	193.5m
Watercourses	Avoid watercourse	0m – designation only

Table 8 Large turbine constraints

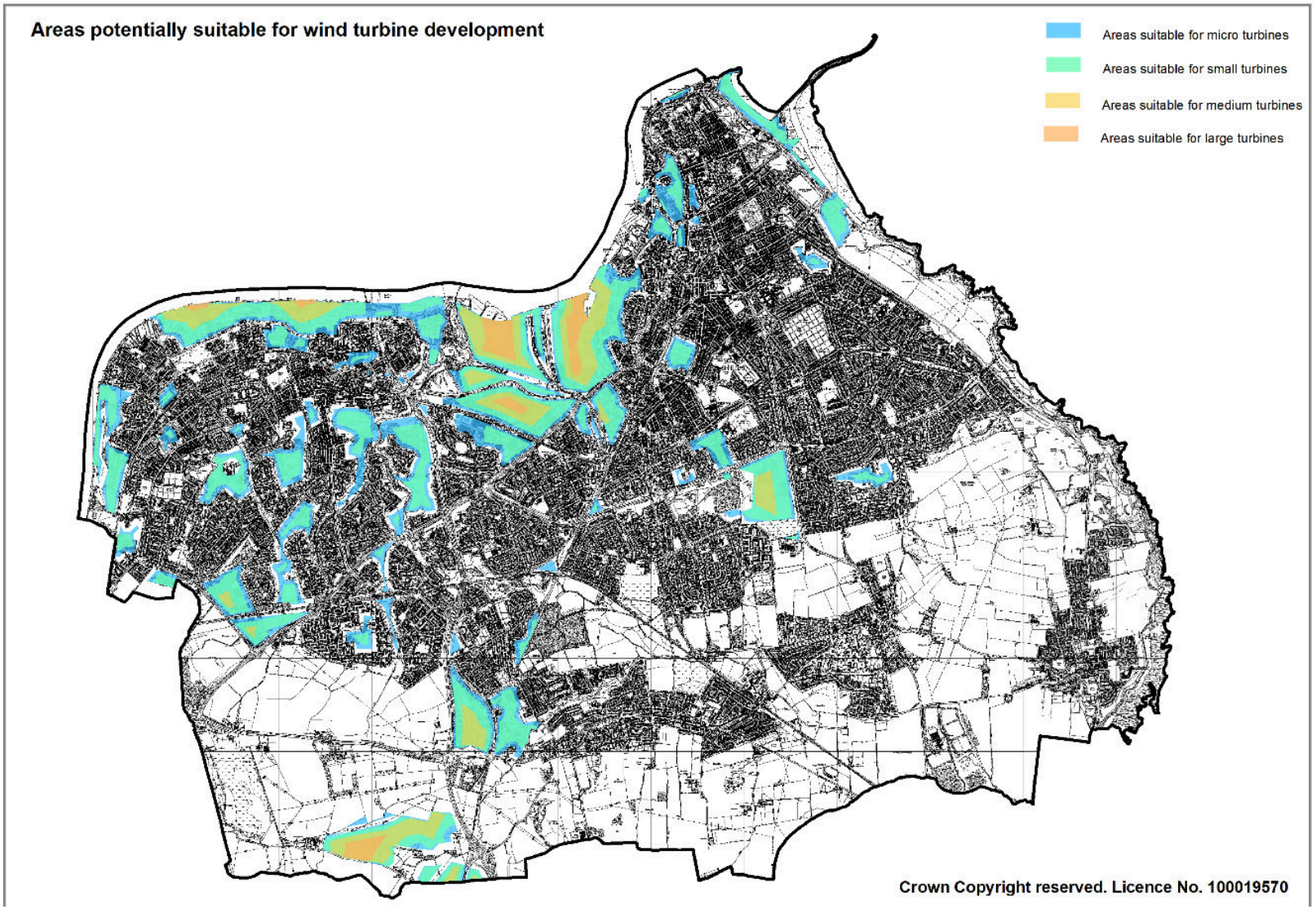

Figure 6 Areas potentially suitable for wind turbine development – stage 1

5. OUTCOMES OF THE CONSTRAINTS MAPPING – STAGE 2

5.1 This section will outline the constraints mapping outcomes through a two staged, refinement process. A second stage sift was undertaken to identify land that was not suitable for wind energy development.

5.2 Firstly, the proposed Draft Local Plan housing allocations were added to the map with the 3 x turbine height buffer as outlined in the methodology. This ensures there is no conflict between the Plan and the areas identified in this report as being potentially suitable for wind energy development.

5.3 An Open Space review (Annex 1) was then analysed to identify parks, open space and sports and leisure facilities that were inappropriate for wind energy development, which were subsequently removed as potential suitable areas for wind turbines. Annex 1 outlines which sites were considered to be inappropriate for wind energy development and how this had been reflected in the mapping.

5.4 The results of this refinement process are shown in Figure 7 below.

6. STUDY FINDINGS

6.1 This study maps a number of planning and environmental considerations in the area covered by the Plan. The intention of this study is to provide an indication of the areas where, at strategic, borough-wide level, areas are potentially suitable or unsuitable for wind energy development due to the presence or otherwise of the planning and environmental considerations included in this study. The aim of this is to assist in the development of the policy approach to onshore wind energy development in the Plan.

6.2 Wind energy developments involving micro and small turbines typically tend to involve single turbines serving individual residential properties, businesses and farms. Based on the methodology of this study, there are areas across the Borough that could be potentially suitable for wind energy development for these scales of wind turbine development.

6.3 Wind energy developments involving medium and large turbines tend to be commercial in nature with a more significant power output aimed at generating energy to meet wider needs, rather than just the needs of individual households or businesses.

6.4 Due to the significant buffers and separation distances applied during the constraints mapping process, the number of potential areas available for medium and large turbines was significantly less compared to those available for micro and wind turbines. Potentially suitable sites for medium and large turbines are concentrated mostly in industrial areas such as the Port of Tyne and industrial riverside areas in the North of the Borough and the International Advanced Manufacturing Park in the South of the Borough.

6.5 The identification of potentially suitable areas in this report does not provide a definitive assessment of the suitability of a particular location for wind energy development and any proposals for wind turbine development in these areas would require more detailed assessment

to inform and assess the acceptability of a proposal. This would include a range of issues, including those matters that this study has indicated would be best considered as part of a more detailed site appraisal and a more detailed consideration of some of the matters included in this study. It is, therefore, recommended that the identification of potentially suitable areas for wind energy development for these scales of wind turbine is accompanied by policy criteria to assess the merits of the proposal at a site level.

6.6 Please note that the areas identified in this report are areas with potential suitability as a result of approach set out within this report. An area's identification does not suggest wind energy development will be built in this location, nor does it pre-determine the decision of a planning application in this location..

6.7 It is recognised that there are existing wind energy developments that are in operation in South Tyneside which would not be located within an area identified as potentially suitable for wind energy development. National planning policy does, however, take a different approach to the repowering of existing wind turbines. The NPPF sets out that proposals for the repowering of existing wind turbines do not need to be located in an area identified as suitable for wind energy development in the development plan. The acceptability of such proposals would be considered against the policy criteria, which would include a range of issues, including those matters that this study has indicated would be best considered as part of a more detailed site appraisal.

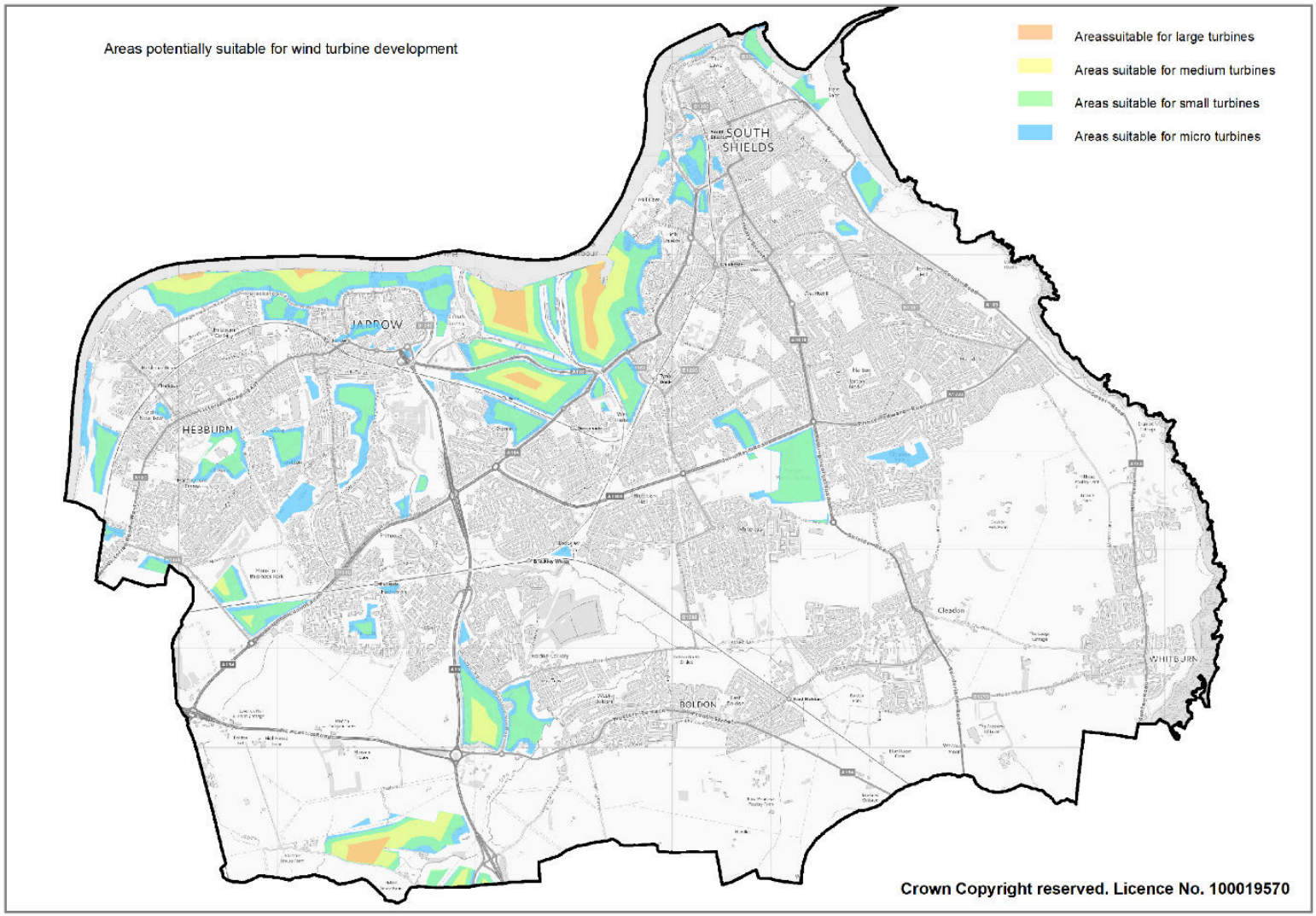

Figure 7Areas potentially suitable for wine turbine development - stage 2

7. POLICY RECOMMENDATIONS

7.1 it is recommended that the Local Plan identifies broad areas that are considered suitable for wind energy development as shown in Figure 8 below and directs applicants to the mapping in this documents for more detailed guidance on turbine heights.

7.2 The potentially suitable areas would not provide a definitive assessment of the suitability of a particular location for wind energy development and any proposals for wind turbine development in these areas would require more detailed assessment to inform and assess the acceptability of a proposal. This would include a range of issues, including those matters that this study has indicated would be best considered as part of a more detailed site appraisal and a more detailed consideration of some of the matters included in this study.

7.3 It is, therefore, also recommended that the identification of potentially suitable areas for wind energy development for these scales of wind turbine is accompanied by policy criteria to assess the merits of the proposal at a site level.

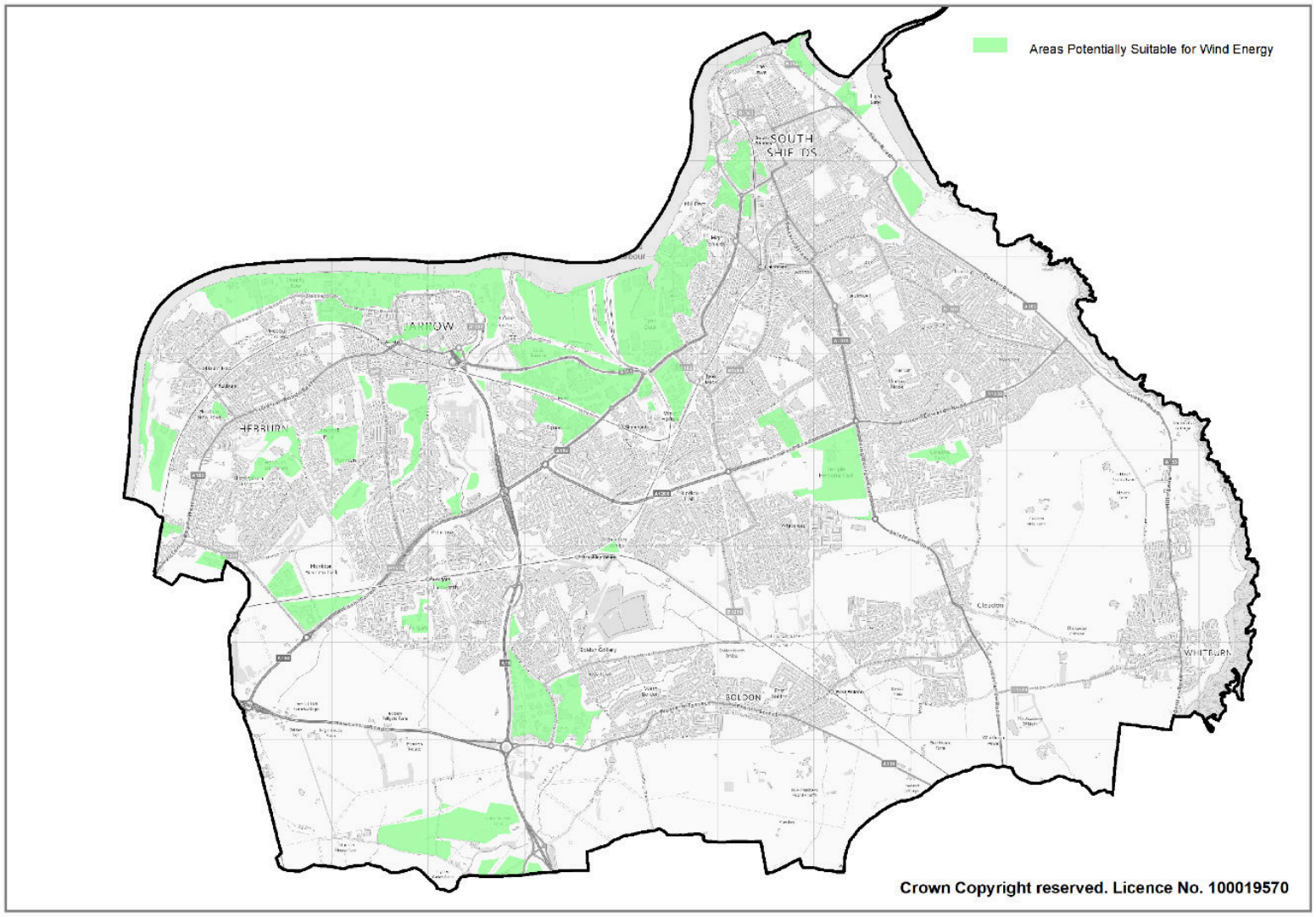

Figure 8 Broad areas potentially suitable for wind energy development

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Wind Energy Mapping – Designated Open Space Review					
Site Name	**Area**	**Typology**	**Turbine size identified on site**	**Comments**	**Recommendation**
Hebburn Riverside Park	Hebburn	Natural & Semi-natural open space	Micro & Small	Hebburn Riverside Park is a large area of natural & semi-natural open space adjacent to the River Tyne. The site is identified as high value and quality in the Open Space Study. Siting of any turbines would need to consider impacts on access to open space and landscape impacts on River Tyne views.	**Retain as potential wind energy site.**
King George V Playing Field	Hebburn	Playing Pitch	Micro & Small	The site contains an adult football pitch. Development of wind turbines could restrict play on the football pitch.	**Remove from mapping.**
Prince Consort Industrial Estate	Hebburn	Natural & Semi-natural open space	Micro	A very area of the southern part of this site is identified for micro turbines. The wider site is narrow with dense vegetation. Siting of turbines would need to consider impacts upon trees and landscape.	**Retain as potential wind energy site.**
Hebburn Comprehensive School	Hebburn	School Playing Pitches and grounds	Micro & Small	A large area of the school playing fields and school grounds are identified for small and micro turbines. Siting of any future turbines should not be located in areas which would restrict use of playing pitches.	**Retain as potential wind energy site – turbines should not be sited on playing pitches.**
Hebburn Hall Ponds	Hebburn	Amenity Open Space	Micro & Small	This is an area of amenity open space; the site is identified as high value and quality in the Open Space Study. Siting of any turbines would need to consider impacts on access to open space.	**Retain as potential wind energy site.**
Clegwell Community Association	Hebburn	3G sports pitch	Micro	The site is a 3G sports pitch within a community association. Siting a turbine on this site would result in the loss of the pitch.	**Remove from mapping.**

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Campbell Park	Hebburn	Park	Micro & Small	This is a large area of open space with belts of mature vegetation. The central area of Campbell Park is identified as being suitable for micro and small wind turbines. Siting of any turbines would need to consider impacts on access to open space and trees.	**Retain as potential wind energy site.**
Monkton Stadium	Jarrow	Sports stadia and pitches	Micro & Small	The site includes Monkton Stadium and a number of sports pitches. Siting of any future turbines should not negatively impact upon playing pitches and sports facilities.	**Review mapping- restrict to micro turbines. Turbines should not affect playing pitches.**
Campbell Park Road	Jarrow	Amenity open space	Micro	Proposed Housing allocation.	**Remove from mapping.**
Featherstone Grove	Jarrow	Natural & Semi – natural open space	Micro	A small section of the northern part of this site is considered suitable for small turbines. The site has mature vegetation and footpaths onsite.	**Remove from mapping.**
Lukes Lane Playing Fields	Hebburn	Playing Pitches	Micro & Small	The areas identified as being suitable for wind turbines cut through the centre of the playing pitches. There is also electricity pylons and cables within the site identified as being suitable.	**Remove from mapping.**
Monkton Felll Woodland	Hebburn	Natural & Semi-natural open space	Micro & Small	The wind mapping shows that a small area of the north-east corner of the site is suitable for turbine development. The site is a LWS.	**Remove from mapping.**
Former Monkton Coke Works	Hebburn	Natural & Semi-natural open space	Micro, Small & Medium	The site is an area of dense woodland with footpaths through the site.	**Remove from mapping.**
Monkton Lane	Hebburn	Amenity open space	Micro	A small section of the site is identified as being suitable for small turbines. The site is close to footpaths and a road.	**Remove from mapping.**
Fieldway	Fellgate & Hedworth	Amenity open space	Micro	A small area to the north of the site is identified as being suitable for small turbines. Part of this site has trees and a public footpath through the site.	**Remove from mapping.**

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Durham Drive	Fellgate & Hedworth	Amenity open space	Micro	The central and northern area of this site is identified as being suitable for small turbines. There is a network of footpaths across the central part of the site	**Review mapping - Consider whether a small area to the north of the site is suitable for turbines**
Calf Close Lane	Fellgate & Hedworth	Amenity open space	Micro	This central section of this site is identified as being suitable for small turbines. The site has a lot of mature trees and vegetation in has an uneven and sloped topography.	**Remove from mapping**
Hedworth Lane	Fellgate & Hedworth	Amenity open space	Micro & Small	The central section of this site has been identified as being suitable for turbines. The site has an uneven topography, with much of the identified area at a lower ground level than surrounding areas. The site also has a network of footpaths and trees.	**Remove from mapping**
King George V Playing Fields	Jarrow	Amenity open space and Playing Fields	Micro & Small	This is a large area of amenity open space and playing pitches. The site has a network of footpaths and areas of trees and mature vegetation. Siting of any turbines should not restrict the use of playing fields.	**Review mapping- remove playing pitches and land north to Jarrow cemetery**
Jarrow Cemetery	Jarrow	Cemetery	Micro & Small	Cemetery site with mature trees.	**Remove from mapping**
Harrison Field Allotments	Jarrow	Allotments	Micro & Small	This is an allotment site. Siting of any turbine should consider use and access to the site.	**Retain as potential wind energy site.**
Bede Burn Road	Jarrow	Amenity open space	Micro & Small	This is an open area of amenity open space. The eastern area of the site is identified as being suitable.	**Retain as potential wind energy site.**
Jarrow School	Jarrow	Playing Fields	Micro & Small	The site includes school playing fields and lapsed playing fields. Siting of turbines should not restrict the use of playing fields.	**Retain as potential wind energy site.**

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West Park	Jarrow	Parks and Gardens	Micro & Small	The central area of West Park is identified as being suitable for micro and small wind turbines. Siting of any turbines would need to consider impacts on access to open space and trees.	**Retain as potential wind energy site.**
Priory Road	Jarrow	Amenity open space	Micro	The central area of this site is identified as being suitable for small turbines. Siting of any turbines would need to consider the effects on trees.	**Retain as potential wind energy site.**
Jarrow Riverside Park, Curlew Road	Jarrow	Parks and Gardens	Micro & Small	Siting of any turbines would need to consider impacts on access to open space and trees.	**Retain as potential wind energy site.**
Filtrona Park	Jarrow	Playing Fields	Micro	The site is a 3G playing pitch and South Shields FC Sports ground.	**Remove from mapping**
Shaftesbury Avenue	Jarrow	Amenity open space	Micro	A small area of this site is identified as being suitable for turbines. The site has undulating topography and mature trees.	**Remove from mapping**
Tyne Point Industrial Estate	Jarrow	Amenity open space	Micro	This is an open area of amenity open space with a footpath across the site. Siting of a turbine should consider access to the site and the public footpath.	**Retain as potential wind energy site.**
Hartford Road	South Shields	Natural & Semi-natural open space	Micro & Small	The area identified as being suitable covers electricity pylons and overhead power cables.	**Remove from mapping**
Green Lane Allotments	South Shields	Allotments	Micro & Small	The site includes allotments, electricity pylons and overhead power cables.	**Remove from mapping**
Harton & Westoe Miners Welfare Sports Club	South Shields	Playing Fields	Micro	The area of the site identified as being suitable covers playing field land and sports pitches.	**Remove from mapping**
Temple Park	South Shields	Playing Fields & Natural & Semi-natural open space	Small, Micro & Medium	The area identified as being suitable for turbines includes sport facilities, pitches and a network of footpaths. Siting of any turbine should consider access to the site and the public footpath and should not restrict use of playing pitches.	**Review mapping – limit to micro turbine. Turbines should not affect playing pitches.**
West Park	South Shields	Parks and Gardens	Micro & Small	The site is a formal park with sports facilities and playing pitches.	**Remove from mapping**

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Harton Staithes	South Shields	Parks and Gardens	Micro & Small	The site is an open area of amenity open space with a footpath network across the site. Siting of any turbine should consider access to the site and the public footpath.	**Retain as potential wind energy site**
St. Hilda's Churchyard	South Shields	Amenity open space	Micro	The site is an area of amenity open space with footpath, trees and listed buildings.	**Remove from mapping**
South Shields Market Place	South Shields	Public open space	Micro	A small area of South Shields Market Place is identified for micro turbines. The site is a pedestrianised area surrounded by buildings and includes a Grade I listed building.	**Remove from mapping**
Little Haven Beach	South Shields	Natural & Semi-natural open space	Micro & Small	The area identified as suitable for turbines includes areas of the beach, carparking and pedestrianised areas. Limited scope for wind turbines closer to the pier.	**Review mapping – area identified for turbines restricted to land around Little Haven and car park.**
Sandhaven Amphitheatre	South Shields	Public Open Space	Micro & Small	This is a pedestrianised area on the foreshore. Any turbine should consider public access and use of the site.	**Retain as potential wind energy site**
Gypsies Green	South Shields	Playing Pitches & sports stadia	Micro & Small	The site provides athletics track and playing pitch. The siting of any turbine should not restrict the use of these facilities.	**Review mapping – limit to micro turbine. Turbines should not affect playing pitches or sports facilities.**
Sandhaven Beach	South Shields	Natural & Semi-natural open space	Micro & Small	This is part of Sandhaven Beach.	**Remove from mapping**
Trow Lea	South Shields	Amenity Open space	Micro & Small	This is a large area of open amenity green space. Any turbine should consider public access and use of the site.	**Retain as potential wind energy site**
Jack Clark Park	South Shields	Playing Fields	Micro	The area of this site identified suitable for turbines is a central part of a cricket pitch.	**Remove from mapping**

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Northfield Allotments	South Shields	Allotments	Micro & Small	This is an allotment site. Siting of any turbine should consider use and access to the site.	**Retain as potential wind energy site**
Cleadon Park Recreation Ground	South Shields	Parks and Gardens	Micro & Small	The site includes playing pitches, footpaths and mature trees. Any turbine should consider public access and use of the site. Use of playing pitches and playing pitch land should not be affected.	**Review mapping – limit to micro turbine. Turbines should not affect playing pitches.**
Colliery Wood	Boldon Colliery	Natural & Semi-natural open space	Micro & Small	The area identified as being suitable is part of Colliery Wood and follows a footpath through the site.	**Remove from mapping**
East View Allotments	Boldon Colliery	Allotments	Micro & Small	This is an allotment site. Siting of any turbine should consider use and access to the site.	**Retain as potential wind energy site**