Association of North East Councils

Wind Farm Development and Landscape Capacity Studies: East Durham Limestone & Tees Plain

ADDENDUM

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1 Introduction

1.1 Overview

Arup, assisted by White Consultants, have undertaken a series of *Wind Farm Development and Landscape Capacity Studies* for the majority of the medium resource areas which are identified in the North East Plan, the Regional Spatial Strategy for the North East.

Following the completion of the *East Durham Limestone and Tees Plain* study in August 2008, there has been a significant amount of developer interest in the Tees Plain area. Two live planning applications and scoping reports for three further wind farm developments have been submitted to local authorities in the area.

The Association of North East Councils (ANEC)[1] in conjunction with Darlington Borough Council, Durham County Council, Hartlepool Borough Council, and Stockton on Tees Borough Council have commissioned Arup to undertake a high level cumulative impact assessment exercise for current wind farms in the Tees Plain area at both planning application and scoping stage.

This high level cumulative assessment is intended as an addendum to the *East Durham Limestone and Tees Plain* study and study has been based on the methodology used for the cumulative effects: scenario modelling throughout the series of landscape capacity studies.

1.2 Current situation in the Tees Plain

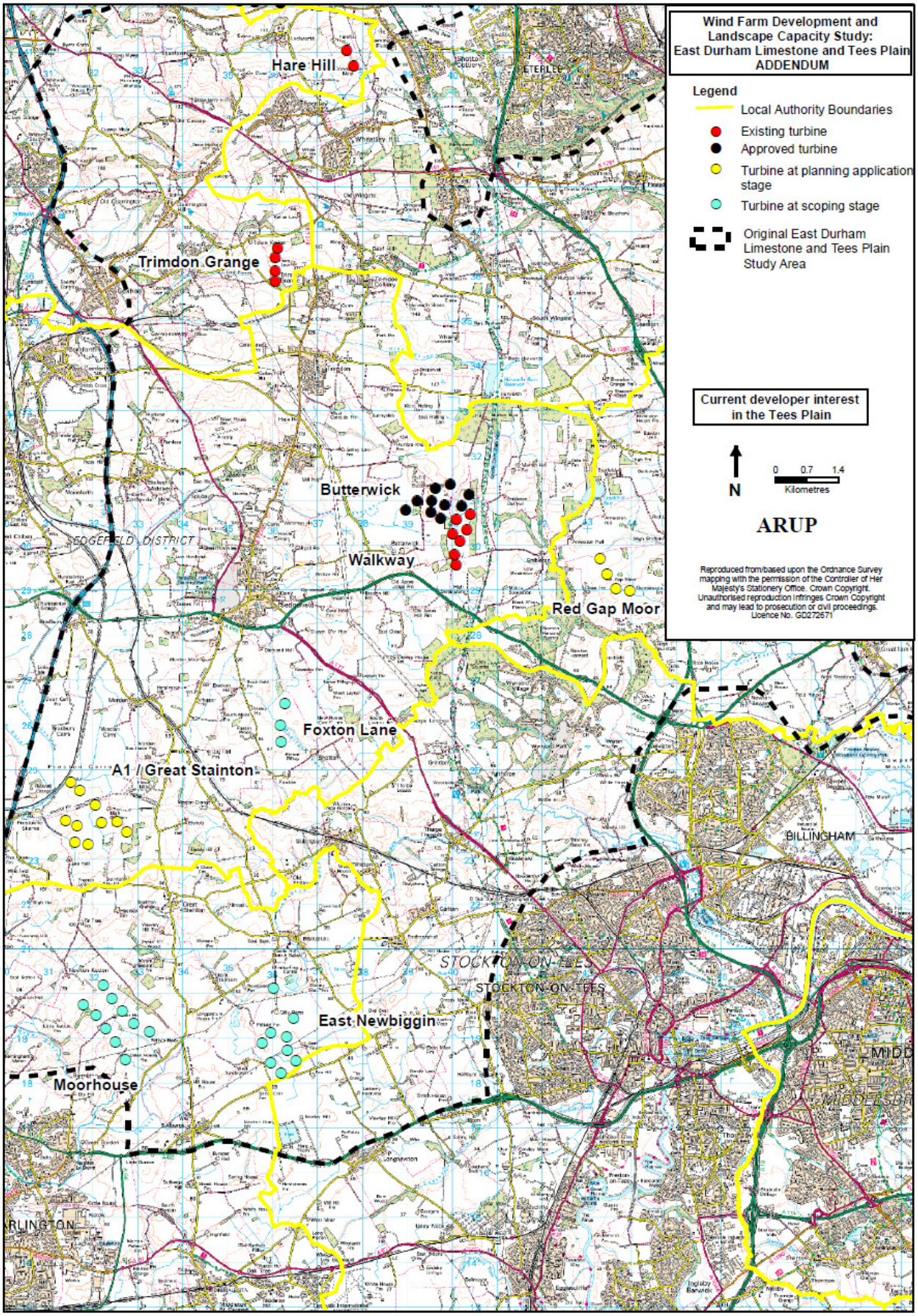
As identified above there has been a growing amount of developer interest in the Tees Plain area, with two planning applications and scoping reports for three further wind farm developments submitted to local authorities in the area, see **Table 1** and **Figure 1**.

Table 1– Developer interest in the public domain in the Tees Plain area

Wind Farm	Turbine Height (to blade tip)	Installed Capacity	Determining Authority	No. of Turbines	Status
A1 (Great Stainton)	121m	25MW	County Durham	10	Planning Application
Red Gap Moor	125m	15MW	Hartlepool	5	Planning Application
Moorhouse	100m	30MW	Darlington	10	Scoping
East Newbiggin	100m	18MW	Darlington	9	Scoping
Foxton Lane	110m	6MW	County Durham	3	Scoping

[1] Formally the North East Regional Assembly (NERA)

Figure 1: Current developer interest in the public domain in the Tees Plain area.



2 Methodology

2.1 Introduction

The methodology for this Addendum study has been based on the scenario modelling methodology outlined in the chapter entitled 'Cumulative Effects: Scenario Modelling' of the *Wind farm Development and Landscape Capacity Studies: East Durham Limestone and Tees Plain* study.

Prior to the consideration of scenarios based on differing combinations of the proposed wind farms, each of the proposed wind farms was briefly reviewed against the findings of the original *East Durham Limestone and Tees Plain* study. The results of the review are presented in **Section 3.1.**

The next section of the addendum study considers scenarios based on combinations of the wind farm sites at planning application and scoping stage in the Tees Plain area. However, it was recognised that modelling all possible combinations of the five wind farm sites would require consideration of a very large number of scenarios. The proposed wind farm at Red Gap Moor lies within 5km, the zone of visual prominence, of both the Butterwick/Walkway, wind farm and the High Volts wind farm; none of the other wind farms considered in this addendum lie within 5km of an existing or permitted commercial scale wind farm development.

Following discussions with members of the Steering Group it was agreed that the addendum study should not consider the Red Gap Moor site in the scenario modelling with the other sites, as the proposals at Red Gap Moor lies within the least constraint area identified in the original study and the number of turbines proposed accords within the typologies identified in the study, see **Section 3.1.** It was proposed that the Addendum study should instead concentrate on the four proposed wind farm sites in the south of the Tees Plain study area, namely: A1 (Great Stainton), Moorhouse, East Newbiggin and Foxton Lane, in combination with the permitted/existing Butterwick/Walkway wind farm.

2.2 Cumulative Effects: scenario modelling

This addendum study has considered the relative performance of scenarios based various combinations of the proposed wind farms at planning application and scoping stage (excluding the Red Gap Moor site) in conjunction with the Butterwick/Walkway development, instead of theoretical scenarios used in the original study. **Table 2** and **Figure 2** provide details of the wind farms considered within the Addendum.

Table 2 – Wind farm developments considered within the scenario modelling

Site	Wind Farm	Maximum Installed Capacity	No. of Turbines	Turbine Height (to blade tip)	Status
A	A1 (Great Stainton)	25MW	10	121m	Planning Application
B	Moorhouse	30MW	10	100m	Scoping
C	East Newbiggin	18MW	9	100m	Scoping
D	Foxton Lane	6MW	3	110m	Scoping
	Walkway	14MW	7	110m	Operational
	Butterwick	25MW	10	110m	Permitted

Figure 2 Scenario locations

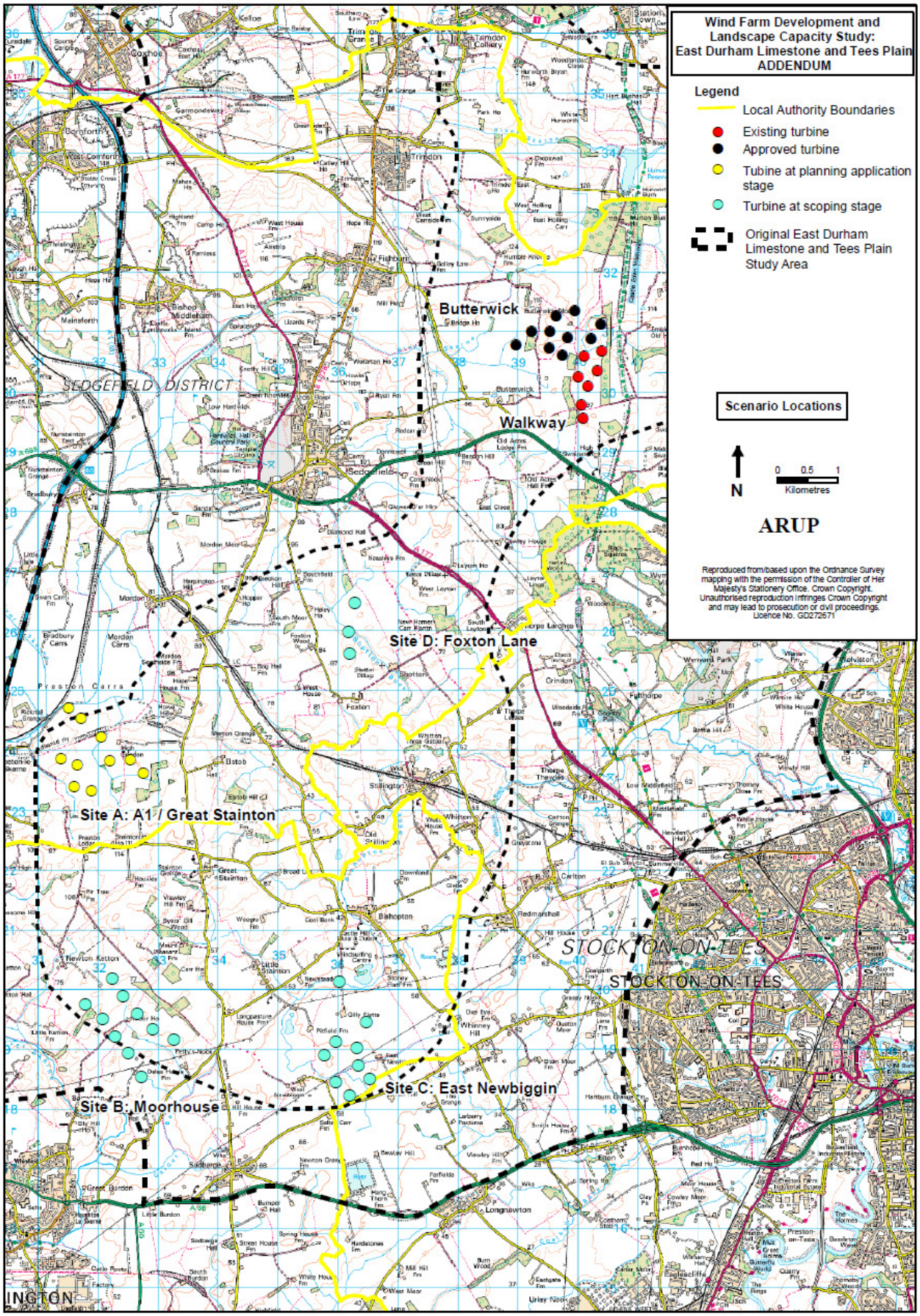


Table 3 outlines the various combinations of proposed wind farm development considered in conjunction with the Butterwick/Walkway development within this Addendum.

Table 3 – Modelling Scenarios

Site	Scenarios														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	◆	◆	◆	◆	◆	◆	◆	◆							
B	◆	◆	◆		◆				◆	◆	◆	◆			
C	◆	◆				◆	◆		◆	◆			◆	◆	
D	◆				◆	◆		◆	◆			◆	◆		◆

Scenario 1 Four additional proposed wind farms (A, B, C & D) spread across Zones 14/19, Zone 23, Zone 24 and Zone 20. The number of turbines in this scenario is 32 with a total estimated maximum capacity of approximately 79MW.

Scenario 2 Three additional proposed wind farms (A, B & C) spread across Zones 14/19, Zone 23 and Zone 24. The number of turbines in this scenario is 29 with a total estimated maximum capacity of approximately 73MW.

Scenario 3 Two additional proposed wind farms (A & B) spread across Zones 14/19 and Zone 23. The number of turbines in this scenario is 20 with a total estimated maximum capacity of approximately 55MW.

Scenario 4 One additional proposed wind farm (A) located in Zones 14/19. The number of turbines in this scenario is 10 with a total estimated maximum capacity of approximately 25MW.

Scenario 5 Three additional proposed wind farms (A, B & D) spread across Zones 14/19, Zone 23 and Zone 20. The number of turbines in this scenario is 23 with a total estimated maximum capacity of approximately 61MW.

Scenario 6 Three additional proposed wind farms (A, C & D) spread across Zones 14/19, Zone 24 and Zone 20. The number of turbines in this scenario is 22 with a total estimated maximum capacity of approximately 49MW.

Scenario 7 Two additional proposed wind farms (A & C) spread across Zones 14/19 and Zone 24. The number of turbines in this scenario is 19 with a total estimated maximum capacity of approximately 43MW.

Scenario 8 Two additional proposed wind farms (A & D) spread across Zones 14/19 and Zone 20. The number of turbines in this scenario is 13 with a total estimated maximum capacity of approximately 31MW.

Scenario 9 Three additional proposed wind farms (B, C & D) spread across Zone 23, Zone 24 and Zone 20. The number of turbines in this scenario is 22 with a total estimated maximum capacity of approximately 54MW.

Scenario 10 Two additional proposed wind farms (B & C) spread across Zone 23 and Zone 24. The number of turbines in this scenario is 19 with a total estimated maximum capacity of approximately 48MW.

Scenario 11 One additional proposed wind farm (B) located in Zone 23. The number of turbines in this scenario is 10 with a total estimated maximum capacity of approximately 30MW.

Scenario 12 Two additional proposed wind farms (B & D) spread across Zone 23 and Zone 20. The number of turbines in this scenario is 13 with a total estimated maximum capacity of approximately 36MW.

Scenario 13 Two additional proposed wind farms (C & D) spread across Zone 24 and Zone 20. The number of turbines in this scenario is 12 with a total estimated maximum capacity of approximately 24MW.

Scenario 14 One additional proposed wind farm (C) located in Zone 24. The number of turbines in this scenario is 9 with a total estimated maximum capacity of approximately 18MW.

Scenario 15 One additional proposed wind farm (D) located in Zone 20. The number of turbines in this scenario is 3 with a total estimated maximum capacity of approximately 6MW.

While the cumulative scenario assessment considers each scenario in conjunction with permitted/operation Butterwick Walkway Development, the turbine numbers stated below do not include the 17 permitted/ operational turbines at the Butterwick/Walkway site; nor do the estimated maximum capacities include the Butterwick/Walkway site (39MW).

2.3 Cumulative Effects: scenario environmental performance

2.3.1 Cumulative impacts on specific viewpoints

As identified in the original study, due to the relatively heavily settled nature of the East Durham Limestone and Tees Plain study area, there are a significant number of landscape and visual receptors of varying sensitivity in and around the proposed wind farm sites.

A selection of receptors, focussing on higher sensitivity receptors, has been used to explore the likely cumulative effects of the various scenarios. These receptors sites are based on those used in the original study but have been reviewed in the field, repositioned and added to where necessary to reflect the spread of development considered within this addendum. The selection of receptors is intended as an attempt at providing a balanced outline assessment of the potential development scenarios.

It should be noted that, due to the number of settlements within and around the proposed wind farm sites, the selection of a particular settlement as a receptors for the assessment of cumulative effects does not necessarily indicate an increased level of sensitivity as a receptor.

The receptors used in this addendum study are:

- Sedgefield, County Durham
- Sadberge, Darlington
- Great Stainton, Darlington
- Stillington, Stockton on Tees
- Bishopton, Darlington
- Bridge over A1(M) on unnamed road to Newton Aycliffe
- Bradbury, County Durham
- Barmpton, Darlington

An assessment of the potential level of significance of effects on visual receptors based on the significances identified in **Table 4** has been undertaken for each of the potential development scenarios. The results are presented in **Appendix A**.

The assessment of the potential level of significance of effects on visual receptors is not intended to replace the more detailed cumulative assessment which would be undertaken as part of planning application for any of the proposed sites. Rather it is intended to provide a high level review of the relative performance of the various scenarios considered within this addendum.

It should be noted that for the assessment of the potential visual effects of the scenarios on receptors:

- No wireframes or photomontages have been carried out to inform the assessments. The assessment therefore generally records the estimated maximum potential effect rather than the actual effect.
- Screening from vegetation, topography and built form have not been taken into account unless it is absolutely clear that visibility is not possible.
- Angles are approximate and based on the wind farm layouts provided by the steering group.

Table 4 – Calibration of significance of visual effects with distance for wind farms

University of Newcastle criteria				*This study calibration*				
						Sensitivity of Receptor		
					Distance range	**High Sensitivity**	**Moderate sensitivity**	**Low sensitivity**
Size class *[Magnitude]*	**Name**	**Descriptors - appearance in central vision field**	**Modifying factors**	**Magnitude of Effects**		**Likely significance of effect**		
Very large	Dominant	Commanding, controlling the view	Few	**Substantial adverse**	Up to 2 km	*Severe*	*Major*	*Moderate*
Large	Prominent	Standing out, striking, sharp, unmistakable, easily seen	Few	**Substantial/ Moderate**	2 to 5 km	*Severe. Major in some situations*	*Major. Moderate in some situations*	*Moderate*
Medium	Conspicuous	Noticeable, distinct, catching the eye or attention, clearly visible, well-defined	Many: Limit of potential visual significance	**Moderate**	4- 10 km	*Major*	*Moderate*	*Minor*
Very small	Inconspicuous	Lacking sharpness of definition, not obvious, indistinct, not clear, obscure, blurred, indefinite	Many Limit of ZVI	**Minor**	9-20km	*Moderate*	*Minor*	*Minor*
Negligible	Faint	Weak, not legible, near limit of acuity of human eye	Few	**Negligible**	15km- 30km	*Negligible*	*Negligible*	*Negligible*

2.3.2 Wider cumulative landscape and visual impacts

The fifteen separate development scenarios have then been compared for potential cumulative landscape and visual impact against the landscape and visual objectives/thresholds used in the *East Durham Limestone and Tees Plain* study, and identified in **Table 5** below. The completed appraisal data for the fifteen scenarios under consideration are included in **Appendix B**.

Table 5 Wind farm scenario cumulative landscape and visual impact assessment appraisal summary table

Landscape/ Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of Threshold	Minimum Field of view in degrees in which stated impacts are to be avoided
VISUAL				
To prevent experience in a settlement of being in a wind farm landscape	High	Avoid most substantial adverse effects (unless directly linked to the development.)	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180-270°
To prevent experience in a residential dwelling of being in a wind farm landscape	High	Avoid most substantial adverse effects (unless directly linked to the development or significantly compensated by agreement	Views from individual dwellings should not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.	180°
To have no significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate-high	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°

Landscape/ Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of Threshold	Minimum Field of view in degrees in which stated impacts are to be avoided
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°
To avoid more than a major effect upon key view points accessible by walkers outside the National Park/AONB	High	Avoid most substantial adverse effects	Turbines to be sited at least 2km away from such defined and agreed viewpoints	90-180°
LANDSCAPE				
To entirely maintain the setting of Historic Parks and Gardens	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°
To broadly protect the setting of nationally designated cultural heritage features	Moderate/ high	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation, (i.e. no turbines within 2km)	270-360°
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.	
To avoid over-dominant effects on the skyline			Turbines to cover less than a third of the field of view of the skyline [say 45 degrees] from sensitive landscape viewpoint.	45°

Landscape/ Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of Threshold	Minimum Field of view in degrees in which stated impacts are to be avoided
To avoid distortion of the sense of scale over a wide area			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides	

It should be noted that the main differences between the above landscape and visual objectives/thresholds (which are those used for the *East Durham Limestone and Tees Plain* study) and those used for the studies in Northumberland are as follows:

- Objectives/Thresholds involving the setting of National Parks and AONBs have been omitted as both the North York Moors National Park and the North Pennies AONB lie at a distance of over 10km from the study area
- Reference to “key hilltop viewpoints” has been replaced with “key viewpoints” to reflect the lower lying gently undulating nature of the Tees Plain.

3 Results

3.1 Outline assessment against previous study

While the cumulative scenario analysis work focuses on the A1(Great Stainton), Moorhouse, East Newbiggin and Foxton Lane wind farms below is a short review of each of the proposed wind farms considered within this addendum, including Red Gap Moor based on the findings of the original *East Durham Limestone and Tees Plain* study. **Figure 3** overleaf shows the proposed wind farms in relation to the zones and "least impact area" as identified in the original study.

A1 wind farm

The proposed A1 (Great Stainton) wind farm (referred to as wind farm or site A in the scenario assessment) comprises 10 turbines, eight of which are located in Zone 14 and with the remaining two turbines located in Zone 19. The main study identified that the largest wind farm typology potentially acceptable in Zone 14 was small, i.e. development of *"less than 7.5MW or less than 4 turbines approx."* to the south and none to the north; and the largest wind farm typology potentially acceptable in Zone 19 was small-none, i.e. a development of *"less than 7.5MW or less than 4 turbines approx."* or no development.

Overall the level of development proposed in this location exceeds the capacity of the landscape identified in the main study. However, the extent to which a development of the scale proposed would exceed the capacity of the local landscape, and the significance of that in the context of the policy environment at the time the application is determined, can only be fully resolved through a detailed investigation of the landscape and visual impacts of the individual scheme which is beyond the scope of this study.

In terms of overall visibility within 15km Zone 14 was ranked as 24th out of 27 Zones (where 1 was best and 27 worst), and Zone 19 was ranked as 18th out of 27. Zone 14 performed in the top 50% in terms of effects on settlements within 10km, in the top 25% in terms of effects on settlements with 2km and in the bottom 50% in terms of effects on roads up to 5km. Overall Zone 14 was ranked as 16th out of 27.

Zone 19 performed in the top 25% in terms of effects on settlements within 10km, in the top 50% in terms of effects on settlement with 2km and in the top 25% in terms of effects on road up to 5km. Overall Zone 19 was ranked as joint 3rd out of 27.

In the main study Zone 14 was identified as having limited suitability for (further) wind farm development and Zone 19 as having none/very limited suitability, based on a high level review of the availability of technically unconstrained land and cumulative visibility issues.

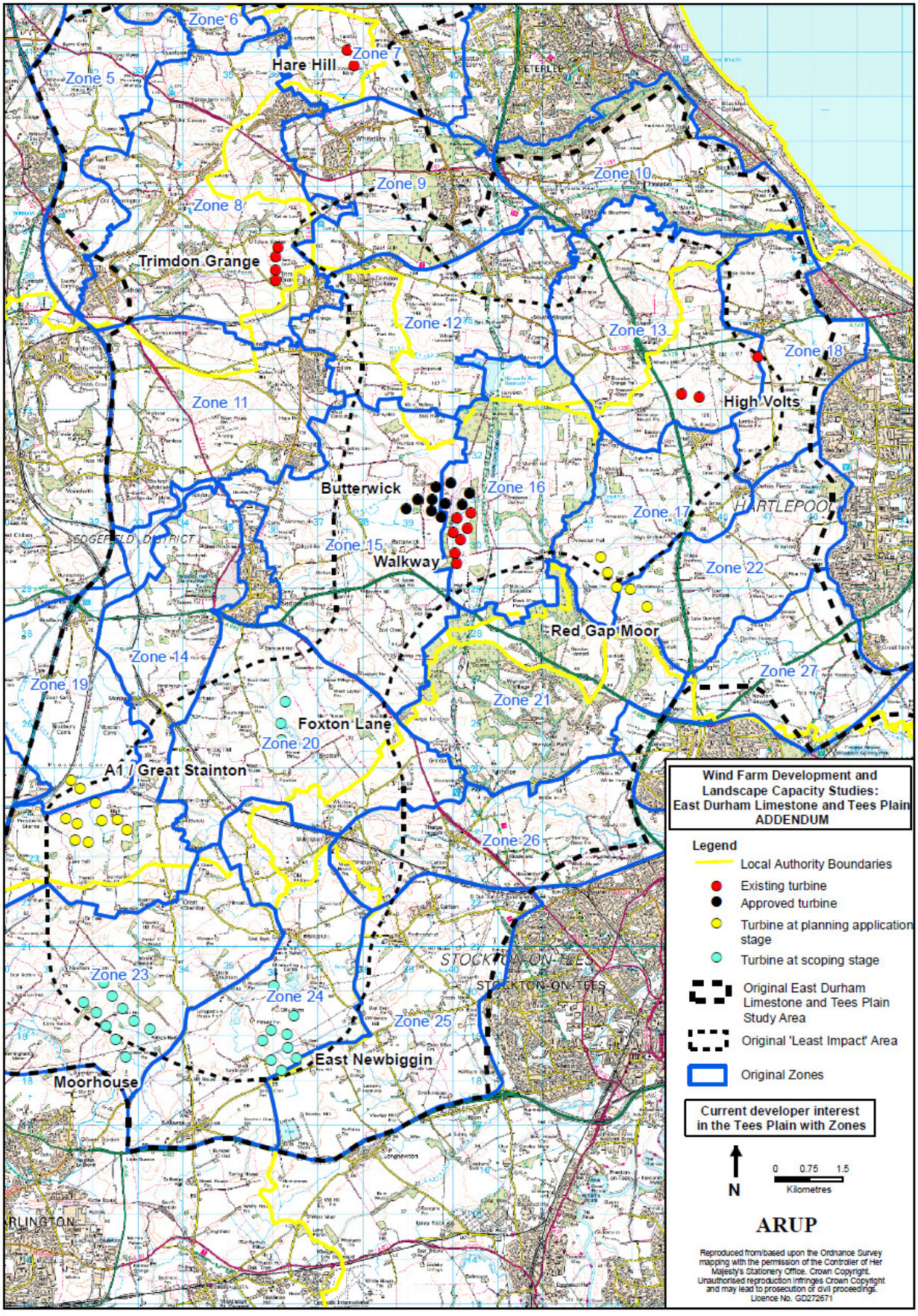
All of the turbines associated with the proposed A1 wind farm development apart from one are located within the "Least impact" area identified in the main study.

Moorhouse wind farm

The proposed Moorhouse wind farm (referred to as wind farm or site B in the scenario assessment) comprises 10 turbines which are all located within Zone 23. The main study identified that the largest wind farm typology potentially acceptable in Zone 23 was small-medium small, i.e. development of *"between 7.5-18 MW or 4-6 turbines approx."*.

Overall the level of development proposed in this location exceeds the capacity of the landscape identified in the main study. However, the extent to which a development of the scale proposed would exceed the capacity of the local landscape, and the significance of that in the context of the policy environment at the time the application is determined, can only be fully resolved through a detailed investigation of the landscape and visual impacts of the individual scheme which is beyond the scope of this study.

Figure 3: Current developer interest in the public domain in the Tees Plain area with Zones and "Least impact" area from main study.



In terms of overall visibility within 15km Zone 23 was ranked 25th out of 27 Zones (where 1 was best and 27 worst). Zone 23 performed in the bottom 50% in terms of effects on settlements within 10km, in the top 50% in terms of effects on settlements with 2km and in the bottom 50% in terms of effects on roads up to 5km. Overall Zone 23 was ranked as 22nd out of 27.

In the main study Zone 23 was identified as having some suitability for (further) wind farm development, based on a high level review of the availability of technically unconstrained land and cumulative visibility issues.

All of the turbines associated with the proposed Moorhouse development apart from two are located within the "Least impact" area identified in the main study.

East Newbiggin wind farm

The proposed East Newbiggin wind farm (referred to as wind farm or site C in the scenario assessment) comprises 9 turbines which are all located within Zone 24. The main study identified that the largest wind farm typology potentially acceptable in Zone 24 was small-medium small, i.e. development of *"between 7.5-18 MW or 4-6 turbines approx."*.

Overall the level of development proposed in this location exceeds the capacity of the landscape identified in the main study. However, the extent to which a development of the scale proposed would exceed the capacity of the local landscape, and the significance of that in the context of the policy environment at the time the application is determined, can only be fully resolved through a detailed investigation of the landscape and visual impacts of the individual scheme which is beyond the scope of this study.

In terms of overall visibility within 15km Zone 24 was ranked 27th out of 27 Zones (where 1 was best and 27 worst). Zone 24 performed in the bottom 25% in terms of effects on settlements within 10km, but in the top 25% in terms of effects on settlements with 2km and in the top 50% in terms of effects on roads up to 5km. Overall Zone 24 was ranked as 18th out of 27.

In the main study Zone 24 was identified as having none/limited suitability for (further) wind farm development, based on a high level review of the availability of technically unconstrained land and cumulative visibility issues.

The proposed East Newbiggin wind farm is located entirely within the "Least impact" area identified in the main study.

Foxton Lane wind farm

The proposed Foxton wind farm (referred to as wind farm or site D in the scenario assessment) comprises 3 turbines which are all located within Zone 20. The main study identified that the largest wind farm typology potentially acceptable in Zone 20 was medium small, i.e. development of *"between 7.5-25 MW or 4-9 turbines approx."*.

The level of development proposed in this location is below the capacity of the landscape identified in the main study.

In terms of overall visibility within 15km Zone 20 was ranked 22nd = out of 27 Zones (where 1 was best and 27 worst). Zone 20 performed in the bottom 50% in terms of effects on settlements within 10km, but in the top 25% in terms of effects on settlements with 2km and in the top 50% in terms of effects on roads up to 5km. Overall Zone 20 was ranked as 10th out of 27.

In the main study Zone 20 was identified as having some suitability for (further) wind farm development, based on a high level review of the availability of technically unconstrained land and cumulative visibility issues.

The proposed Foxton Lane wind farm is located entirely within the "Least impact" area identified in the main study.

Red Gap Moor wind farm

The proposed Red Gap Moor wind farm comprises 5 turbines, three of which are located in Zone 17 with the remaining two located in Zone 22. The main study identified that the largest wind farm typology potentially acceptable in Zone 17 was medium small, i.e. development of *"between 7.5-25 MW or 4-9 turbines approx."*.; and the largest wind farm typology potentially acceptable in Zone 22 was also medium small, i.e. a development of *"between 7.5-25 MW or 4-9 turbines approx."*.;.

Overall the level of development proposed in this location is below the capacity of the landscape identified in the main study.

In terms of overall visibility within 15km Zone 17 was ranked 13th out of 27 Zones (where 1 was best and 27 worst), and Zone 22 was ranked as 10th out of 27. Zone 17 performed in the bottom 50% in terms of effects on settlements within 10km, but in the top 25% in terms of effects on settlements with 2km and in the top 25% in terms of effects on roads up to 5km. Overall Zone 17 was ranked as 2nd out of 27.

Zone 22 performed in the bottom 50% in terms of effects on settlements within 10km, in the bottom 25% in terms of effects on settlement with 2km and in the top 50% in terms of effects on road up to 5km. Overall Zone 22 was ranked as 20th out of 27.

In the main study Zone 17 was identified as having limited suitability for (further) wind farm development and Zone 22 as also having limited suitability, based on a high level review of the availability of technically unconstrained land and cumulative visibility issues.

Two of the turbines at the proposed Red Gap Moor wind farm are located within the "Least impact" area identified in the main study, while the remaining three turbines are located outside but in close proximity to the "Least impact" area.

3.2 Scenario Performance Summary

3.2.1 Summary of significance of visual effects

Full details of the significance of visual effects for the proposed scenarios based on **Table 4** are contained in **Appendix A**.

Receptors in Sedgefield would experience effects with a maximum potential significance of Severe / Major as a result of Scenarios 1, 5, 6, 9, 12, 13 and 15, due to proximity of site D; and effects of a maximum potential significance of Major as a result of the other Scenarios. However, views out from Sedgefield are generally restricted by intervening built form and vegetation, and it is unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.

Receptors in Sadberge would experience effects with a maximum potential significance of Severe as a result of Scenarios 1, 2, 3,5, 6, 7, 9, 10, 11, 12, 13 and 14 due to proximity of sites B &/or C; effects of a maximum potential significance of Major as a result of Scenarios 4, and 8; and effects of a maximum potential significance of Major / Moderate as a result of Scenario 15. Intervening vegetation may provide some screening of views of site A. Turbines at sites B & C would be located in close proximity on two sides of Sadberge.

Receptors in Great Stainton would experience effects with a maximum potential significance of Severe / Major as a result of Scenarios 1 to 14 due to the proximity of sites A & B; and effects with a maximum potential significance of Major as a result of Scenario 15. However, views out from Great Stainton are generally restricted by intervening built form and vegetation.

Receptors in Stillington would experience effects with a maximum potential significance of Severe / Major as a result of Scenarios 1, 2, 5, 6, 7, 8, 9, 10, 12, 13, 14, and 15, due to the proximity of sites C & D; and effects with a maximum potential significance of Major as a result of the other Scenarios. However, views out from Stillington are frequently restricted by

intervening built form and vegetation, but views out are possible from the elevated land in the east of the village.

Receptors in Bishopton would experience effects with a maximum potential significance of Severe as a result of Scenarios 1, 2, 6, 7, 9, 10, 13 and 14, due to the proximity of site C; and effects with a maximum potential significance of Major as a result of the other Scenarios. However, views out from Bishopton restricted by intervening topography, built form and vegetation, but open views are possible from the elevated ground to the south of village.

Receptors using the Bridge over the A1(M) would experience effects with a maximum potential significance of Moderate as a result of Scenarios 1 to 12, due to the proximity of sites A & B; and effects with a maximum potential significance of Minor as a result of the other Scenarios. However views from this location are generally screened by intervening vegetation.

Receptors in Bradbury would experience effects with a maximum potential significance of Severe / Major as a result of Scenarios 1 to 8 due to the proximity of site A; effects with a maximum potential significance of Major as a result of Scenarios 9, 12, 13 and 15; and effects with a maximum potential significance of Major/ Moderate as a result of the other Scenarios. However, views from within the village are restricted by intervening built form and vegetation.

Receptors in Barmpton would experience effects with a maximum potential significance of Severe as a result of Scenarios 1, 2, 3, 5, 9, 10, 11 and 12 due to the proximity of site B; effects with a maximum potential significance of Major as a result of Scenarios 4, 6, 7, 8, 13 and 14; and effects with a maximum potential significance of Major/ Moderate as a result of Scenario 15. However, views from within Barmpton are restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B. Intervening vegetation may provide some screening of views of site A.

3.2.2 Summary of cumulative landscape and visual scenario performance

Full details of the cumulative landscape and visual performance of each of the proposed scenarios are contained in **Appendix B**.

On the basis of the cumulative Landscape and Visual assessment criteria used for this study (Table 5), all scenarios are considered to have “likely to be acceptable” or possibly acceptable” effects on key visitor facilities, Historic Parks and Gardens, the setting of nationally designated cultural heritage features and the skyline.

Scenarios 1 and 2 are both considered to have unacceptable potential cumulative effects on settlements. Scenario 1 has the largest number of “likely to be unacceptable” cumulative effects. Scenarios 5 and 6 each have a single “likely to be unacceptable” cumulative effect and the largest number of “possibly unacceptable” cumulative effects. Scenario 9 also has a single “likely to be unacceptable” cumulative effect and several “possibly unacceptable” cumulative effects.

Due to the relative number and complexity of receptors in this area it has not been possible to be definitive in assessing unacceptable and acceptable in some cases so intermediate categories have been used where there is potential doubt/more information is needed.

Scenario 1’s potential adverse cumulative effects are as follows:

- “Unacceptable” cumulative effects on settlements of more than 10 houses;
- “Likely to be unacceptable” effects on isolated dwellings, local landscape character and scale;
- “Possibly unacceptable” effects on roads.

Scenario 2’s potential adverse cumulative effects are as follows:

- "Unacceptable" cumulative effects on settlements of more than 10 houses;
- "Likely to be unacceptable" effects on local landscape character;
- "Possibly unacceptable" effects on isolated dwellings, roads and scale.

Scenario 3's potential adverse cumulative effects are as follows:

- "Possibly unacceptable" effects on local landscape character and scale;

Scenario 4 is not considered to have adverse cumulative effects.

Scenario 5 and 6's potential adverse cumulative effects are as follows:

- "Likely to be unacceptable" effects on local landscape character; and
- "Possibly unacceptable" effects on settlements of more than 10 houses, isolated dwellings, roads and scale.

Scenario 7 and 8's potential adverse cumulative effects are as follows:

- "Possibly unacceptable" effects on local landscape character and scale.

Scenario 9's potential adverse cumulative effects are as follows:

- "Likely to be unacceptable" effects on local landscape character; and
- "Possibly unacceptable" effects on settlements of more than 10 houses, isolated dwellings and scale.

Scenario 10's potential adverse cumulative effects are as follows:

- "Likely to be unacceptable" effects on; and
- "Possibly unacceptable" effects on settlements of more than 10 houses, local landscape character and scale.

Scenario 11 is not considered to have adverse cumulative effects.

Scenarios 12 and 13 are considered to have a "possibly unacceptable" cumulative effect on local landscape character.

Scenarios 14 and 5 are not considered to have adverse cumulative effects.

All scenarios find at least some properties lying directly between (existing/consented and proposed) clusters and there is potential for cumulative impact. At the level of assessment it has not been possible to determine the full cumulative effects on each. Of key concern is the effect on settlements above 10 properties. This does not just apply to precisely what can be seen from any given building but also from its curtilage and from the approaches to the settlement.

The presence of the Walkway/Butterwick turbine cluster and the heavily settled nature of the study area mean all of the scenarios have some potential to impact upon individual dwellings. The closer turbine clusters are to each other the greater the potential for substantially adverse effects on individual properties caused by the presence of turbines on both sides of a property.

There are a number of listed buildings and structures scattered across the area which are more or less potentially affected by the various scenarios. Again at the level of assessment it has not been possible to determine the full cumulative effects on each.

4 Conclusions

This study has built upon the methodology for scenario analysis utilised in the Wind Farm Development and Landscape Capacity Studies and is intended as an Addendum to the East Durham Limestone and Tees Plain report.

The principle findings of the scenario analysis undertaken for this Addendum study are:

- The Butterwick/Walkway wind farm plus one other wind farm development (i.e. Scenarios 4, 14 and 15) would possibly be acceptable.
- The Butterwick/Walkway wind farm plus two other developments (i.e. Scenarios 3, 7, 8, 10, 12 and 13), may be acceptable if it can be shown that there would be no possibly unacceptable effects on local landscape character and scale, and in the case of Scenario 10 no unacceptable effects on the settlement of Sadberge.
- Development of Sites B & C (i.e. Scenarios 1, 2, 9 and 10) would result in possibly unacceptable effects on Sadberge;
- The Butterwick/ Walkway wind farm plus three or more wind farm developments between Darlington and Sedgefield (i.e. Scenarios 1, 2, 5, 6 and 9) may be unacceptable, unless effects on settlement including Sadberge, Great Stainton and other settlements, local landscape character and scale can clearly be shown to be acceptable.

Appendix A

Potential Visual Effect of Scenarios

Scenario 1 (Site A + B + C + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approx. distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Maximum potential significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**73°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**81°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A and D. Turbines at sites B & C would be located in close proximity on two sides of Sadberge.
3	Great Stainton	1.9km (Site A)	**97°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**69°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**75°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**76°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**50°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**93°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B. Intervening vegetation may provide some screening of views of site A.

Scenario 2 (Site A + B + C + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/ Walkway)	**59°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**79°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A. Turbines at sites B & C would be located in close proximity on two sides of Sadberge.
3	Great Stainton	1.9km (Site A)	**95°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	3.2km (Site C)	**59°**	*Severe/ Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**72°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**76°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**39°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**93°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B. Intervening vegetation may provide some screening of views of site A.

Scenario 3 (Site A + B + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/Walkway)	**52°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**44°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A.
3	Great Stainton	1.9km (Site A)	**74°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	4.4km (Site A)	**45°**	*Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	3.7km (Site B)	**47°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**63°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**33°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1.1km (Site B)	**77°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B. Intervening vegetation may provide some screening of views of site A.

Scenario 4 (Site A + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/Walkway)	**41°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	6.6km (Site A)	**19°**	*Major*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A.
3	Great Stainton	1.9km (Site A)	**40°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded.
4	Stillington	4.4km (Site A)	**28°**	*Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	4.3km (Site A)	**23°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**49°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**32°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	5.2km (Site A)	**23°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village; however intervening vegetation may provide some screening of views of site A.

Scenario 5 (Site A + B + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**66°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**46°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A and D.
3	Great Stainton	1.9km (Site A)	**76°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**55°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	3.7km (Site B)	**50°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**63°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**44°**	*Severe/ Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**77°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B. Intervening vegetation may provide some screening of views of site A.

Scenario 6 (Site A + C + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**62°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	2.1km (Site C)	**56°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A and D.
3	Great Stainton	1.9km (Site A)	**63°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**52°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**51°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**62°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**49°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	4km (Site C)	**49°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village; however intervening vegetation may provide some screening of views of site A.

Scenario 7 (Site A + C + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/Walkway)	**48°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	2.1km (Site C)	**54°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site A.
3	Great Stainton	1.9km (Site A)	**61°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	3.2km (Site C)	**42°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**48°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1(M)	1.4km (Site A)	**62°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**38°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	4km (Site C)	**48°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village; however intervening vegetation may provide some screening of views of site A.

Scenario 8 (Site A + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**55°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	6.6km (Site A)	**21°**	*Major*	Views to the north possible from within Sadberge. Intervening vegetation would provide some screening of views of sites A and D.
3	Great Stainton	1.9km (Site A)	**42°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded.
4	Stillington	2.5km (Site D)	**38°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	4.3km (Site A)	**26°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	1.4km (Site A)	**49°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	3.3km (Site A)	**33°**	*Severe / Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	5.2km (Site A)	**24°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village; however intervening vegetation may provide some screening of views of site A.

Scenario 9 (Site B + C + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**53°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**69°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site D. Turbines at sites B & C would be located in close proximity on two sides of Sadberge.
3	Great Stainton	2.2km (Site B)	**67°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**54°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**62°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	3.8km (Site B)	**44°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	4.7km (Site D)	**40°**	*Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**88°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B.

Scenario 10 (Site B + C + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick / Walkway)	**39°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**67°**	*Severe*	Views to the north possible from within Sadberge. Turbines at sites B & C would be located in close proximity on two sides of Sadberge.
3	Great Stainton	2.2km (Site B)	**65°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	3.2km (Site C)	**44°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**59°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	3.8km (Site B)	**36°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	7.5km (Butterwick/ Walkway)	**29°**	*Major / Moderate*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**88°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B.

Scenario 11 (Site B + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/ Walkway)	**32°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**32°**	*Severe*	Views to the north possible from within Sadberge.
3	Great Stainton	2.2km (Site B)	**44°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	5.6km (Site B)	**30°**	*Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	3.7km (Site B)	**34°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	3.8km (Site B)	**23°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	7.5km (Butterwick/ Walkway)	**23°**	*Major / Moderate*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**71°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B.

Scenario 12 (Site B + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**46°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	1.9km (Site B)	**34°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site D.
3	Great Stainton	2.2km (Site B)	**46°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**37°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	3.7km (Site B)	**37°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	3.8km (Site B)	**31°**	*Moderate*	Views generally screened by intervening vegetation.
7	Bradbury	4.7km (Site D)	**34°**	*Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	1km (Site B)	**71°**	*Severe*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village, which runs through the proposed wind farm at site B.

Scenario 13 (Site C + D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**42°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	2.1km (Site C)	**44°**	*Severe*	Views to the north possible from within Sadberge. Intervening vegetation may provide some screening of views of site D.
3	Great Stainton	2.9km (Site C)	**33°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	2.5km (Site D)	**37°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**38°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	6.5km (Site D)	**30°**	*Minor*	Views generally screened by intervening vegetation.
7	Bradbury	4.7km (Site D)	**30°**	*Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	4km (Site C)	**61°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village; however views north may be partially screened by intervening vegetation and topography.

Scenario 14 (Site C + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view occupied by wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	4.4km (Butterwick/Walkway)	**28°**	*Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	2.1km (Site C)	**42°**	*Severe*	Views to the north possible from within Sadberge.
3	Great Stainton	2.9km (Site C)	**31°**	*Severe / Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views south from rear elevation of houses in south of village are possible, however intervening vegetation will provide some screening.
4	Stillington	3.2km (Site C)	**27°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. However, views out are possible from the elevated land in the east of the village.
5	Bishopton	1.1km (Site C)	**35°**	*Severe*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	6.7km (Site C)	**22°**	*Minor*	Views generally screened by intervening vegetation.
7	Bradbury	7.5km (Butterwick/ Walkway)	**19°**	*Major/ Moderate*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	4km (Site C)	**32°**	*Major*	Views from within Barmpton restricted by intervening topography and vegetation. Views out are possible from the public footpath to the north of the village.

Scenario 15 (Site D + Butterwick/Walkway)

Viewpoint number	Viewpoint location	Approximate distance to nearest cluster	Approximate maximum potential angle of view of wind turbines	Potential likely maximum significance of effect	Additional comments
1	Sedgefield	1.9km (Site D)	**35°**	*Severe / Major*	Views out from Sedgefield generally restricted by intervening built form and vegetation. Unlikely that individual properties would be able to view both Butterwick/Walkway and any additional development to south.
2	Sadberge	8.7km (Site D)	**9°**	*Major / Moderate*	Views to the north possible from within Sadberge. Intervening vegetation would provide some screening of views to wind farm D.
3	Great Stainton	4.4km (Site D)	**15°**	*Major*	Views out from Great Stainton generally restricted by intervening built form and vegetation. Views to north are possible from the church yard; however intervening vegetation provides some screening. Note: the church is outside of main village core and grounds are well wooded.
4	Stillington	2.5km (Site D)	**23°**	*Severe / Major*	Views out from Stillington frequently restricted by intervening built form and vegetation. Views possible towards wind farm D from the elevated land in the east of the village.
5	Bishopton	4.3km (Site D)	**13°**	*Major*	Views out from Bishopton restricted by intervening topography, built form and vegetation. Open views possible from elevated ground to south of village.
6	Bridge over A1 (M)	6.5km (Site D)	**17°**	*Minor*	Views generally screened by intervening vegetation.
7	Bradbury	4.7km (Site D)	**24°**	*Major*	Views from within the village are restricted by intervening built form and vegetation.
8	Barmpton	8.7km (Site D)	**9°**	*Major / Moderate*	Views from within Barmpton restricted by intervening topography and vegetation. Views to the north possible from the public footpath to the north of the village.

Appendix B

Scenario Analysis

Scenarios 1 & 2

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 1 (A+B+C+D+Butterwick/Walkway)	Scenario 2 (A+B+C+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					When measured on a plan, Great Stainton and Barmpton would potentially have a view of turbines that exceed 90° of the field of view (97° and 93° respectively). However, due to intervening screening from topography, built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Great Stainton, Sedgefield and Stillington. As receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Sites B & C located around 2km to the north west of the settlement and under 2km to the north east, respectively. This is likely to result in significant adverse visual impacts on the settlement of Sadberge. The closest turbines within the Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.	When measured on a plan, Great Stainton and Barmpton would potentially have a view of turbines that exceed 90° of the field of view (95° and 93° respectively). However, due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Great Stainton, Sedgefield and Stillington. As receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Sites B & C located around 2km to the north west of the settlement and under 2km to the north east, respectively. This is likely to result in significant adverse visual impacts on the settlement of Sadberge. The closest turbines within the Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.
					Unacceptable	**Unacceptable**
To prevent experience in a	High	Avoid most substantial adverse	Views from individual dwellings should	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 1 (A+B+C+D+Butterwick/Walkway)	Scenario 2 (A+B+C+ Butterwick/Walkway)
residential dwelling of being in a wind farm landscape		effects (unless directly linked to the development or significantly compensated by agreement)	not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.		The spread of development in this scenario means that dwellings located within the proposed group of wind farms are unlikely to be further than approx 3km from turbine development. Several properties located in close proximity to the proposed clusters in this scenario will have in excess of 100° of their field of views occupied by wind turbines. However, intervening vegetation and topography may restrict views.	The spread of development in this scenario means that dwellings located within the proposed group of wind farms are unlikely to be further than approx 2.5km from turbine development. Several properties located in close proximity to the proposed clusters in this scenario have in excess 100° of their field of view occupied by wind turbines.
					Likely to be Unacceptable	**Possibly Unacceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography.	
					The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbine cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbine cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 1 (A+B+C+D+Butterwick/Walkway)	Scenario 2 (A+B+C+ Butterwick/Walkway)
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Sites A, B, and D (approx. 1km, 4km, and 5.5km, respectively). The proposed clusters and Butterwick/ Walkway cluster can potentially be viewed in quick succession. The A66 passes in close proximity to Site B and C (2km and 2.5km respectively). Views north of the A66 could potentially view a number of additional clusters in quick succession. The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively). While intervening vegetation and topography will provide some screening of views, it is unlikely that 5 minutes travel would occur between sequential views of separate wind farms along each of the various routes.	The A1 (M) passes close to Site A and B (approx. 1km and 4km, respectively). The proposed clusters and the Butterwick/Walkway cluster can potentially be viewed in quick succession. The A66 passes in close proximity to Site B and C (2km and 2.5km respectively). Views north of the A66 could potentially view a number of additional clusters in quick succession. While intervening vegetation and topography will provide some screening of views, it is unlikely that 5 minutes travel would occur between sequential views of separate wind farms along the A1 and A66. It is unlikely that any wind farm developments, other than Butterwick/Walkway would be visible when using the A177. The A689 passes in close proximity to Butterwick/ Walkway. It is unlikely that the full extent of the proposed clusters would be visible from the A689.
					Possibly Unacceptable	**Possibly Unacceptable**
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 1 (A+B+C+D+Butterwick/Walkway)	Scenario 2 (A+B+C+ Butterwick/Walkway)
			visible within 7km)		Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 3km from Site D and 5km from Site A. Wynyard Park: Approximately 6km from Site D. Windlestone Hall: Approximately 6km from Site A.	Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 5km from Site A. Windlestone Hall: Approximately 6km from Site A.
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Sites A, B, C, and D all lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Sites A, B and C all lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		No turbines are located within a high sensitivity landscape.	
					The size and spread of the clusters in this scenario would begin to dominate and overwhelm the scale of the landscape, especially when considered with the existing and consented turbine development within 10km of the proposed scenario.	The size and spread of the clusters in this scenario would begin to dominate and overwhelm the scale of the landscape, especially when considered with the existing and consented turbine development within 10km of the proposed scenario.
					Likely to be Unacceptable	**Likely to be Unacceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 1 (A+B+C+D+Butterwick/Walkway)	Scenario 2 (A+B+C+ Butterwick/Walkway)
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The turbine clusters in this scenario are spread throughout the landscape. This may result in the distortion of the sense of scale, which would arise from large-scale turbines in a rural landscape, occurring over a wide area.	The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The proposed Site A and B are located approximately 3km apart and proposed wind farms B and C are located approximately 2.5km apart in a broad arc in the south of the study area. This may result in the concentration of the distortion of the sense of scale, which would arise from large-scale turbines in a rural landscape, occurring in this broad area.
					Likely to be Unacceptable	**Possibly Unacceptable**

Scenarios 3 & 4

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 3 (A+B+ Butterwick/Walkway)	Scenario 4 (A+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario would have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge. While the closest turbines within the Site B would be located less than 2km from the village of Barmpton, it is likely that intervening local topography will provide some screening of the potential views of the development from the village. Where views were possible, the closest turbines would be viewed at a distance of under 2km for Sadberge and Great Stainton. The closest turbines within Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village	None of the viewpoints used in this scenario would have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view both Site A and the Butterwick/Walkway wind farm development from a single location within settlements broadly located between the two wind farms including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side of the settlements may be possible. Where views of Site A were possible, turbines would be viewed at a distance of under 2km from Great Stainton.
					Possibly Acceptable	**Likely to be Acceptable**
To prevent experience in a	High	Avoid most substantial adverse	Views from individual dwellings should	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 3 (A+B+ Butterwick/Walkway)	Scenario 4 (A+ Butterwick/Walkway)
residential dwelling of being in a wind farm landscape		effects (unless directly linked to the development or significantly compensated by agreement)	not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.		The spread of development in this scenario means that dwellings located between Site A and B are unlikely to be further than approx 2km from turbine development. Several properties located in close proximity to Site A & B have in excess of 100° of their field of view occupied by wind turbines, with open space between sites. However, intervening vegetation and topography may restrict views.	The spread of development in this scenario means that dwellings located between Site A and the Butterwick/Walkway wind farm developments are unlikely to be further than a maximum 4.5km from turbine development. Several properties located around Bradbury and Sedgefield appear to have views in excess of 100° of their field of view occupied by wind turbines. However, intervening vegetation and topography may restrict views.
					Possibly Acceptable	**Possibly Acceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography.	
					The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbine cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbine cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 3 (A+B+ Butterwick/Walkway)	Scenario 4 (A+ Butterwick/Walkway)
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Site A, and B (approx. 1km and 4km, respectively). Site A, B and the Butterwick/Walkway cluster can potentially be viewed in quick succession. While intervening vegetation and topography will provide some screening of views, it is unlikely that 5 minutes travel would occur between sequential views of separate wind farms along the A1. The A66 passes in close proximity to Site B (2km). Sites A and B could potentially be viewed in quick succession, although it is possible they would be viewed as one development. It is unlikely that any wind farm developments, other than Butterwick/Walkway would be visible when using the A177. The A689 passes in close proximity to Butterwick/Walkway. Depending on views from A689 it is unlikely that proposed clusters would be visible.	The A1 (M) passes close to Site A (approx. 1km). Site A and Butterwick/Walkway will potentially be viewed in quick succession. The A689 passes in close proximity to Butterwick/Walkway. Depending on views from the A469 it is unlikely that Site A would be visible.
					Possibly Acceptable	**Possibly Acceptable**
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 3 (A+B+ Butterwick/Walkway)	Scenario 4 (A+ Butterwick/Walkway)
Gardens.			of the properties (i.e. no turbines visible within 7km)		Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 5km from Site A. Windlestone Hall: Approximately 6km from Site A.	Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 5km from Site A. Windlestone Hall: Approximately 6km from Site A.
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Sites A and B lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Sites A lies within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		No turbines are located within a high sensitivity landscape.	
					The size and spread of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with four or more proposed developments.	The extent of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario may begin to dominate the scale of the landscape, although to a less extent than other scenarios involving three or more wind farms.
					Possibly Unacceptable	**Possibly Acceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 3 (A+B+ Butterwick/Walkway)	Scenario 4 (A+ Butterwick/Walkway)
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The distortion of scale within the wider landscape caused by large scale turbines in the landscape occurs over a relatively wide area in this scenario.	The turbines have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area.
					Possibly Unacceptable	**Likely to be Acceptable**

Scenarios 5 & 6

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 5 (A+B+D+ Butterwick/Walkway)	Scenario 6 (A+C+D+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario would have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge. While the closest turbines within Site B would be located less than 2km from the village of Barmpton, it is likely that intervening local topography will provide screening of the potential views of the development from the village. Where views were possible, the closest turbines would be viewed at a distance of under 2km for Sadberge and Great Stainton. The closest turbines within Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.	None of the viewpoints used in this scenario would have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments may be possible from Sadberge with Site C located less than 2km to the north east of the settlement.
					Possibly Unacceptable	**Possibly Unacceptable**
To prevent experience in a	High	Avoid most substantial adverse	Views from individual dwellings should	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 5 (A+B+D+ Butterwick/Walkway)	Scenario 6 (A+C+D+ Butterwick/Walkway)
residential dwelling of being in a wind farm landscape		effects (unless directly linked to the development or significantly compensated by agreement)	not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.		The spread of development in this scenario means that dwellings located within the proposed group of wind farms are unlikely to be further than approx 2km from turbine development. Several properties located in close proximity to the proposed clusters in this scenario will have in excess of 100° of their field of views occupied by wind turbines. However, intervening vegetation and topography may restrict views.	The spread of development in this scenario means that dwellings located within the proposed group of clusters; in particular Sites A, C & D, will be approximately 3km from the closest turbine development. However, intervening vegetation and topography will provide some screening of views. Several properties located in close proximity to the proposed clusters in this scenario will have in excess of 100° of their field of views occupied by wind turbines.
					Possibly Unacceptable	**Possibly Unacceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography	
					The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbine cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 5 (A+B+D+ Butterwick/Walkway)	Scenario 6 (A+C+D+ Butterwick/Walkway)
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Site A, B, and D (approx. 1km, 4km, and 5.5km, respectively). The proposed clusters and Butterwick/Walkway cluster can potentially be viewed in quick succession. The A66 passes in close proximity to Site B (2km). Views north of the A66 could potentially view a number of additional clusters in quick succession. The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively). While intervening vegetation and topography will provide some screening of views, it is unlikely that 5 minutes travel would occur between sequential views of separate wind farms along each of the various routes.	The A1 (M) passes close to Site A and Site D (approx. 1km and 5.5km respectively). The proposed clusters and Butterwick/Walkway cluster can potentially be viewed in quick succession. The A66 passes in close proximity to Site C (2.5km). Views to the north of the A66 could potentially view a number of additional clusters in quick succession. The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively). While intervening vegetation and topography will provide some screening of views, it is unlikely that 5 minutes travel would occur between sequential views of separate wind farms along each of the various routes.
					Possibly Unacceptable	**Possibly Unacceptable**
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 5 (A+B+D+ Butterwick/Walkway)	Scenario 6 (A+C+D+ Butterwick/Walkway)
Gardens.			of the properties (i.e. no turbines visible within 7km)		Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 3km from Site D and 5km from Site A. Wynyard Park: Approximately 6km from Site D. Windlestone Hall: Approximately 6km from Site A.	Registered Parks and Gardens possible affected within 7km are: Hardwick Park: Approximately 3km from Site D and 5km from Site A. Wynyard Park: Approximately 6km from Site D. Windlestone Hall: Approximately 6km from Site A.
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Sites A, B and D all lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Site A, C, and D all lies within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		No turbines are located within a high sensitivity landscape.	
					The size and spread of the clusters in this scenario would begin to dominate and overwhelm the scale of the landscape, especially when considered with the existing and consented turbine development within 10km of the proposed scenario.	The size and spread of the clusters in this scenario would begin to dominate and overwhelm the scale of the landscape, especially when considered with the existing and consented turbine development within 10km of the proposed scenario.
					Likely to be Unacceptable	**Likely to be Unacceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 5 (A+B+D+ Butterwick/Walkway)	Scenario 6 (A+C+D+ Butterwick/Walkway)
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The proposed Sites A and B are located approximately 3km apart and proposed wind farms A and D are located approximately 4km apart in a broad arc in the south of the study area. This may result in the concentration of the distortion of the sense of scale, which would arise from large-scale turbines in a rural landscape, occurring in this broad area.	The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The turbine clusters in this scenario are spread throughout the landscape. This may result in the distortion of the sense of scale, which would arise from large-scale turbines in a rural landscape, occurring over a wide area.
					Possibly Unacceptable	**Possibly Unacceptable**

Scenarios 7 & 8

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 7 (A+C+ Butterwick/Walkway)	Scenario 8 (A+D+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development.	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments may be possible from Sadberge with Site C located less than 2km to the north east of the settlement.	None of the viewpoints used in this scenario have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments may be possible from Sadberge; however, due to the separation distance, they would be unlikely to cause significant visual impacts.
					Possibly Acceptable	**Possibly Acceptable**
To prevent experience in a residential dwelling of being in a wind farm landscape	High	Avoid most substantial adverse effects (unless directly linked to the development or significantly compensated by agreement)	Views from individual dwellings should not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	
					The spread of development in this scenario means that, at the closest point, dwellings between two or more of the turbine clusters considered in this scenario (in particular Site A & C) will be approximately 2.5km from turbine development. However, intervening vegetation and topography will provide some screening of views.	The development in this scenario is spread across the landscape in a linear fashion. This means that dwellings will only be located between both Sites A & D where they will be approximately 2km max. from turbine development; or between Site D and the Butterwick/Walkway wind farms, where they will be approximately 2.5km from turbine development. However, intervening vegetation and topography will provide some screening of views.

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 7 (A+C+ Butterwick/Walkway)	Scenario 8 (A+D+ Butterwick/Walkway)
			sides of dwellings to be avoided.		**Possibly Acceptable**	**Possibly Acceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography	
					The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Site A (1km). Site A and Butterwick/Walkway will potentially be viewed in quick succession. The A66 passes in close proximity to Site C (2.5km). Views to the north of the A66 could potentially view Site A and Site C in quick succession although there is significant overlap.	The A1 (M) passes close to Site A and D (1km and 5.5km respectively). The proposed clusters and Butterwick/Walkway can potentially be viewed in quick succession. The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively).
					Possibly Acceptable	**Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 7 (A+C+ Butterwick/Walkway)	Scenario 8 (A+D+ Butterwick/Walkway)
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	
					Registered Parks and Gardens possible affected within 7km are: Hardwick Park: Approximately 5km from Site A. Windlestone Hall: Approximately 6km from Site A.	Registered Parks and Gardens possible affected within 7km are: Hardwick Park: Approximately 3km from Site D and 5km from Site A. Wynyard Park: Approximately 6km from Site D. Windlestone Hall: Approximately 6km from Site A.
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Sites A and C lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Sites A and D lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a	Moderate	Avoid most	Turbines avoid		No turbines are located within a high sensitivity landscape.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 7 (A+C+ Butterwick/Walkway)	Scenario 8 (A+D+ Butterwick/Walkway)
severe effect upon sensitive local landscape character over a wide area.		substantial adverse effects	direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		The size and spread of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with three or more proposed developments.	The size and spread of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with three or more proposed developments.
					Possibly Unacceptable	**Possibly Unacceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The distortion of scale within the wider landscape caused by large scale turbines in the landscape occurs over a relatively wide area in this scenario.	The turbines in Site A have been set back from the edge of the carrs. There may be some potential for the turbines to dominate the carrs depending on their final location following micrositing however it is acknowledged that any comparison of scale would be over a localised area. The distortion of scale within the wider landscape caused by large scale turbines in the landscape occurs over a relatively wide area in this scenario.
					Possibly Unacceptable	**Possibly Unacceptable**

Scenarios 9 & 10

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 9 (B+C+D+ Butterwick/Walkway)	Scenario 10 (B+C+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Great Stainton, Sedgefield and Stillington. As receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Sites B & C located around 2km to the north west of the settlement and under 2km to the north east, respectively. The closest turbines Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.	None of the viewpoints used in this scenario have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Sites B & C located around 2km to the north west of the settlement and under 2km to the north east, respectively. The closest turbines within Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.
					Possibly Unacceptable	**Possibly Unacceptable**
To prevent experience in a	High	Avoid most substantial adverse	Views from individual dwellings should	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 9 (B+C+D+ Butterwick/Walkway)	Scenario 10 (B+C+ Butterwick/Walkway)
residential dwelling of being in a wind farm landscape		effects (unless directly linked to the development or significantly compensated by agreement)	not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.		The spread of development in this scenario has two clusters, Sites B & C, located approximately 2.5km apart; with Site D and the Butterwick/Walkway development located over 5.5km and 10km to the north east of the proposed wind farms, respectively. Dwellings located within the between two or more clusters considered within the scenario will be between approximately 1.5km and 3km from the closest turbine development. However, intervening vegetation and topography will provide some screening of views. Several properties located in close proximity to the proposed clusters in this scenario will have in excess of 100° of their filed of views occupied by wind turbines.	The spread of development in this scenario has two clusters, Sites B & C, located approximately 2.5km apart with the Butterwick/Walkway development located over 10km to the north east of the proposed wind farms. This means that dwellings located within the proposed group of clusters, in particular between Sites B & C, are unlikely to be further than approx. 1.5km from turbine development. Several properties located in close proximity to the proposed clusters in this scenario will have in excess of 100° of their filed of views occupied by wind turbines.
					Possibly Unacceptable	**Possibly Unacceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography	
					The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 9 (B+C+D+ Butterwick/Walkway)	Scenario 10 (B+C+ Butterwick/Walkway)
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Site B and D (4km and 5.5km respectively). The proposed clusters and Butterwick/Walkway can potentially be view in quick succession from both directions. The A466 passes in close proximity to Site B and Site C (2km and 2.5km respectively). The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively).	The A1 (M) passes close to Site B (4km). The proposed clusters and Butterwick/Walkway can potentially be view in quick succession from both directions. The A466 passes in close proximity to Site B and Site C (2km and 2.5km respectively).
					Possibly Acceptable	**Possibly Acceptable**
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	
					Registered Parks and Gardens possible affected within 7km are: Hardwick Park: Approximately 3km from Site D. Wynyard Park: Approximately 6km from Site D.	There are no registered Historic Parks and Gardens within 7km of Sites B and C.

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 9 (B+C+D+ Butterwick/Walkway)	Scenario 10 (B+C+ Butterwick/Walkway)
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Site B, C, and D all lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Sites B and C lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		No turbines are located within a high sensitivity landscape.	
					The size and spread of the clusters in this scenario would begin to dominate and overwhelm the scale of the landscape, especially when considered with the existing and consented turbine development within 10km of the proposed scenario.	The size and spread of the clusters in this scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with three or more proposed developments.
					Likely to be Unacceptable	**Possibly Unacceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**
To avoid distortion of the sense of			Avoid locations where there is a juxtaposition		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 9 (B+C+D+ Butterwick/Walkway)	Scenario 10 (B+C+ Butterwick/Walkway)
scale over a wide area.			between wind farms and well defined landform/changes in level e.g. hill and valley sides		The proposed Sites B and C are located approximately 2.5km apart. This would potentially lead to a concentration of any distortion of the sense of scale caused by large scale turbines within a rural landscape.	The proposed Sites B and C are located approximately 2.5km apart. This would potentially lead to a concentration of any distortion of the sense of scale caused by large scale turbines within a rural landscape.
					Possibly Unacceptable	**Possibly Unacceptable**

Scenarios 11 & 12

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 11 (B+ Butterwick/Walkway)	Scenario 12 (B+D+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario have a view of turbines that exceeded 90 of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view both the proposed Moorhouse wind farm and the Butterwick/Walkway wind farm development from a single location within settlements broadly located between the two wind farms including Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the full extent of all clusters for all receptors are unlikely due to landform and vegetation. The closest turbines within Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.	None of the viewpoints used in this scenario have a view of turbines that exceeded 90 of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the full extent of all clusters for all receptors are unlikely due to landform and vegetation. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Site B located around 2km to the north west of the settlement. The closest turbines within Site B would be located less than 2km from the village of Barmpton; however, it is likely that intervening local topography will provide screening of most of the potential views of the development from the village.
					Likely to be Acceptable	**Possibly Acceptable**
To prevent experience in a	High	Avoid most substantial adverse	Views from individual dwellings should	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 11 (B+ Butterwick/Walkway)	Scenario 12 (B+D+ Butterwick/Walkway)
residential dwelling of being in a wind farm landscape		effects (unless directly linked to the development or significantly compensated by agreement)	not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.		Due to the separation distance Site B and the Butterwick/Walkway wind farms, dwellings located in between the developments will not be in close proximity to turbines on more than one side.	The development in this scenario is spread across the landscape in a linear fashion. This means that dwellings will only be located between both Sites B & D where they will be approximately 3.5km max. from turbine development; or between Site D and Butterwick/Walkway wind farms where they will be approximately 2.5km from turbine development. However, intervening vegetation and topography will provide some screening of views.
					Likely to be Acceptable	**Possibly Acceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography	
					The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views	360°	The A1(M) passes close to Site B (4km). Site B and Butterwick/Walkway can potentially be viewed in quick succession from both directions. The A466 passes in close proximity to Site B (2km).	The A1(M) passes close to Site B and D (4km and 5.5km respectively). The proposed clusters and Butterwick/Walkway can potentially be view in quick succession from both directions. The A466 passes in close proximity to Site B (2km). The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively).

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 11 (B+ Butterwick/Walkway)	Scenario 12 (B+D+ Butterwick/Walkway)
change			of separate wind farms		**Possibly Acceptable**	**Possibly Acceptable**
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	
					There are no registered Historic Parks and Gardens within 7km of Site B.	Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 3km from Site D. Wynyard Park: Approximately 6km from Site D
					Possibly Acceptable	**Possibly Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Site B lies within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Sites B and D lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a	Moderate	Avoid most	Turbines avoid		No turbines are located within a high sensitivity landscape.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 11 (B+ Butterwick/Walkway)	Scenario 12 (B+D+ Butterwick/Walkway)
severe effect upon sensitive local landscape character over a wide area.		substantial adverse effects	direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		The scenario as it stands exceeds the landscape capacity previously established for the area however when considered with the existing and consented turbine development within the wider area the proposed may be considered to be acceptable in terms of the scale and grain of the landscape.	The size and spread of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with three or more proposed developments.
					Likely to be Acceptable	**Possibly Unacceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The distortion of scale caused by large scale turbines in the landscape occurs over a relatively limited but widely spaced area in this scenario.	The distortion of scale caused by large scale turbines in the landscape occurs over a relatively limited but widely spaced area in this scenario.
					Likely to be Acceptable	**Likely to be Acceptable**

Scenarios 13 & 14

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 13 (C+D+ Butterwick/Walkway)	Scenario 14 (C+ Butterwick/Walkway)
VISUAL						
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development .	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation.	
					None of the viewpoints used in this scenario have a view of turbines that exceeded 90 of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments from a single location within settlements broadly located between the wind farms within the scenario including Sedgefield, Great Stainton and Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the full extent of all clusters for all receptors are unlikely due to landform and vegetation. Views of the wind farms within the proposed scenario and the Walkway/Butterwick wind farm developments would be possible from Sadberge with Site C located less than 2km to the north east of the settlement.	None of the viewpoints used in this scenario have a view of turbines that exceeded 90 of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view both Site C and the Butterwick/Walkway wind farm developments from a single location within settlements broadly located between the two wind farms including Stillington. However, as receptors move through the settlements and the immediate surrounding area, sequential views of both wind farm developments may be possible. Views of the full extent of all clusters for all receptors are unlikely due to landform and vegetation.
					Possibly Acceptable	**Likely to be Acceptable**
To prevent experience in a residential dwelling of being in a wind farm landscape	High	Avoid most substantial adverse effects (unless directly linked to the development or significantly compensated by agreement)	Views from individual dwellings should not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines.	
					The development in this scenario is spread across the landscape in a shallow arc; this means that no dwellings will be closely surrounded by the turbine development in this scenario. At the closest point dwellings between two or more of the turbine clusters considered in this scenario will be approximately 2.5km max. from turbine development. However, intervening vegetation and topography will provide some screening of views.	Due to the separation distance between Site C and the Butterwick/Walkway wind farms, dwellings located in between the developments will not be in close proximity to turbines on more than one side.

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 13 (C+D+ Butterwick/Walkway)	Scenario 14 (C+ Butterwick/Walkway)
			sides of dwellings to be avoided.		**Possibly Acceptable**	**Likely to be Acceptable**
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography	
					The visitor centre at Wynyard Woodland Park is approx. 3.5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.	The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography.
					Likely to be Acceptable	**Likely to be Acceptable**
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) passes close to Site D (5.5km). The proposed clusters and Butterwick/Walkway can potentially be view in quick succession from both directions, although there is significant overlap of the clusters travelling northwards. The A466 passes in close proximity to Site C (2.5km). The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively).	The A466 passes in close proximity to Site C (2.5km).
					Possibly Acceptable	**Likely to be Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 13 (C+D+ Butterwick/Walkway)	Scenario 14 (C+ Butterwick/Walkway)
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.	
					Acceptable	**Acceptable**
LANDSCAPE						
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.	
					Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 3km from Site D. Wynyard Park: Approximately 6km from Site D	There are no registered Historic Parks and Gardens within 7km of Site C.
					Possibly Acceptable	**Acceptable**
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	
					Sites C and D lie within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.	Site C lies within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.	**Possibly Acceptable** Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a	Moderate	Avoid most	Turbines avoid		No turbines are located within a high sensitivity landscape.	

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario	
					Scenario 13 (C+D+ Butterwick/Walkway)	Scenario 14 (C+ Butterwick/Walkway)
severe effect upon sensitive local landscape character over a wide area.		substantial adverse effects	direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		The size and spread of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario is beginning to dominate and overwhelm the scale of the landscape, although to a lesser extent than scenarios with three or more proposed developments.	The scenario as it stands exceeds the landscape capacity previously established for the area however when considered with the existing and consented turbine development within the wider area the proposed may be considered to be acceptable in terms of the scale and grain of the landscape.
					Possibly Unacceptable	**Likely to be Acceptable**
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.	
					Possibly Acceptable	**Possibly Acceptable**
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.	
					The distortion of scale caused by large scale turbines in the landscape occurs over a relatively limited but generally widely spaced area in this scenario.	The distortion of scale caused by large scale turbines in the landscape occurs over a relatively limited but widely spaced area in this scenario.
					Likely to be Acceptable	**Likely to be Acceptable**

Scenario 15

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario
					Scenario 15 (D+ Butterwick/Walkway)
VISUAL					
To prevent experience in a settlement of being in a wind farm landscape.	High	Avoid most substantial adverse effects (unless directly linked to the development.	Views from settlements of more than 10 dwellings should not have more than 90° of their field of view (360°) occupied by wind turbines. Wind farms on both sides to be avoided where they would cause significant or major visual impacts.	180°-270°	Where views were possible, turbines would be viewed at a distance of over 2km in most cases, providing a degree of visual separation. Views of the full extent of all clusters from settlements within the study area are unlikely due to landform and vegetation. None of the viewpoints used in this scenario have a view of turbines that exceeded 90° of their field of view. Due to intervening screening predominantly from built form and vegetation it may not be possible to view both Site D and the Butterwick/Walkway wind farm developments from a single location within Sedgefield which is located between the wind farms. However, as receptors move through the settlements and the immediate surrounding area, sequential views of the wind farm developments on either side may be possible. Views of the full extent of all clusters for all receptors are unlikely due to landform and vegetation. **Likely to be Acceptable**
To prevent experience in a residential dwelling of being in a wind farm landscape	High	Avoid most substantial adverse effects (unless directly linked to the development or significantly compensated by agreement)	Views from individual dwellings should not have more than 180° of their field of view occupied by wind turbines. Turbines in close proximity on both sides of dwellings to be avoided.	180°	The heavily settled nature of the study area means that many individual dwellings may have a proportion of their field of view occupied by wind turbines. In some cases, this proportion may be nearing or over the threshold but building, stands of trees, and other intervening vegetation are likely to restrict screen views of turbines. The spread of development in this scenario means that dwellings located in between Site D and the Butterwick/Walkway wind farms will only be approximately 2.5km (max.) from turbine development. However, intervening vegetation will provide some screening of views. Lines of pylons pass between the two sites further interrupting views. **Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario
					Scenario 15 (D+ Butterwick/Walkway)
To have a significant detrimental effect upon the experience of visiting key visitor facilities within or in close proximity to the study area.	Moderate - High	Moderate adverse or greater	Turbines to be more than 7 – 10km from the most sensitive receptors e.g. World Heritage Site, and 5km minimum from other receptors	360°	Turbine clusters within all scenarios are over at least 18km from Durham Castle and Cathedral World Heritage Site. Visibility is restricted due to intervening vegetation and topography The visitor centre at Wynyard Woodland Park is approx. 5km from the nearest turbines cluster; visibility is restricted due to intervening vegetation and topography. **Likely to be Acceptable**
To prevent the impression to users of the main 'A' roads through the study area that they are in a wind farm landscape i.e. to allow only limited landscape change	Moderate	Substantial adverse	No more than a medium-sized wind farm equivalent of turbines to be seen with substantial adverse effect from A-roads in a single view. At least 5 minutes travel must occur between sequential views of separate wind farms	360°	The A1 (M) Site D (approx. 5.5km). The proposed clusters and Butterwick/Walkway cluster can potentially be viewed in quick succession. The A177 passes in close proximity between Site D (1.5km) and Butterwick/Walkway (4km). The A689 passes in close proximity to Site D and Butterwick/Walkway (1.5km and 1km respectively). **Possibly Acceptable**

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario
					Scenario 15 (D+ Butterwick/Walkway)
To avoid more than a major effect upon key long-distance viewpoints accessible by walkers outside the National Park/AONB.	High	Avoid most substantial adverse effects	Turbines to be sited 2km away from such defined and agreed viewpoints.	90°-180°	No nearby hilltop viewpoints. The Castle Eden Walkway (Sustrans Cycle Route 1) passes over 2km from nearest turbine cluster in all scenarios. Visibility will be reduced due to screening by intervening vegetation and topography.
					Acceptable
LANDSCAPE					
To entirely maintain the setting of Historic Parks and Gardens.	High	Moderate adverse or greater	No turbines to be visibly prominent from the publicly accessible parts of the properties (i.e. no turbines visible within 7km)	360°	The exact layout of turbines within any development should take the setting of any Historic Parks and Gardens into consideration. All of the registered Historic Parks within 7km of the scenarios are relatively heavily wooded and turbines are unlikely to be prominent due to screening by trees and other vegetation. The degree of acceptability also depends on the extent of public access to land within Historic Parks and Gardens.
					Registered Parks and Gardens possibly affected within 7km are: Hardwick Park: Approximately 3km from Site D. Wynyard Park: Approximately 6km from Site D
					Possibly Acceptable
To broadly protect the setting of nationally designated cultural heritage features.	Moderate/ High	Avoid most substantial adverse effects	No turbines to directly affect the setting of such structures where setting is a key consideration in their designation (i.e. no turbines within 2km)	270°-360°	The exact layout of turbines within any development should take the setting of any sensitive listed buildings and Scheduled Ancient Monuments into consideration. Stands of trees and other intervening vegetation may screen views of turbines to and from listed structures. Acceptability is dependant on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
					Site D lies within 2km of numerous Listed Buildings and Scheduled Ancient Monuments.

Landscape / Visual Impact Objective	Sensitivity of receptor	Minimum magnitude of adverse visual effect to be avoided	Definition of threshold	Minimum field of view in which stated impacts are to be avoided	Scenario
					Scenario 15 (D+ Butterwick/Walkway)
					Possibly Acceptable Depending on actual degree of visibility from structure and whether setting is a key consideration in the designation of the structure.
To avoid a severe effect upon sensitive local landscape character over a wide area.	Moderate	Avoid most substantial adverse effects	Turbines avoid direct effects on high sensitivity landscapes. No groups of turbines to overwhelm the grain of the landscape in terms of landform and cover.		No turbines are located within a high sensitivity landscape.
					The extent of the clusters in this scenario when considered with the existing and consented turbine development within 10km of the proposed scenario may begin to dominate the scale of the landscape, although to a less extent than other scenarios involving two or more wind farms.
					Possibly Acceptable
To avoid over-dominant effects on the skyline.			Turbines to cover less than a third of the field of view of the skyline (say 45°) from sensitive landscape viewpoint.	45°	Buildings, stands of trees and other intervening vegetation are likely to restrict views of turbines from sensitive landscape viewpoints within 10km of the proposed scenarios.
					Possibly Acceptable
To avoid distortion of the sense of scale over a wide area.			Avoid locations where there is a juxtaposition between wind farms and well defined landform/changes in level e.g. hill and valley sides		Large-scale turbines (i.e. tall turbines) can distort the scale of the landscape making the landcover (e.g. trees and dwellings) seem relatively small in comparison. The clusters in all scenarios avoid well defined landforms and changes in level.
					The distortion of scale caused by turbines in the landscape occurs over a relatively limited area in this scenario.
					Likely to be Acceptable