

Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Annex B to Appendix 2 to Deadline 3 Submission:
Kentish Flats Extensions SLVIA Documents

Relevant Examination Deadline: 3

Submitted by Vattenfall Wind Power Ltd

Date: March 2019

Revision A

Drafted By:	Vattenfall Wind Power Ltd
Approved By:	Daniel Bates
Date of Approval:	March 2019
Revision:	A

Revision A	Original Document submitted to the Examining Authority
N/A	
N/A	
N/A	

Copyright © 2019 Vattenfall Wind Power Ltd

All pre-existing rights retained

Kentish Flats Offshore Wind Farm Extension Environmental Statement

Section 14: Landscape, Seascape and Visual Impact Assessment

IPC Document Ref: 4.2.14

Version No.	Raised by	Approved by	Date of issue	Vattenfall Review
V0.1	Paolo Pizzolla		02.06.11	
V1.0	Paolo Pizzolla		16.06.11	03.08.11
V2.0	Peter Dunmow	Paolo Pizzolla	18.08.11	30.08.11
V3.0	Paolo Pizzolla	Carina Oliver	05.09.11	
FINAL	Paolo Pizzolla			

CONTENTS

	Page
14 LANDSCAPE SEASCAPE AND VISUAL IMPACT ASSESSMENT	1
14.1 Introduction	1
14.2 Guidance and Consultation	3
14.3 Methodology	11
14.4 Existing Environment	12
14.5 Description of Existing Landscape Resource and Character Areas	19
14.6 Potential Impacts during Construction	25
14.7 Potential Impacts during Operation	27
14.8 Potential Impacts during Decommissioning	28
14.9 The Assessment of Potential Residual Landscape and Seascape Impacts Arising from the Operation of the Kentish Flats Extension	28
14.10 Assessment of Impacts on Visual Amenity	41
14.11 Viewpoint Assessment	44
14.12 Assessment of Cumulative Impacts on the Perception of the Landscape/Seascape Resource	58
14.13 Summary of Impacts on Landscape, Seascape and Visual Amenity	60
14.14 References	65

APPENDICES

14.1	Methodology
14.2	Registered Parks and Gardens
14.3	Landscape and Seascape Character Area Description
14.4	Assessment of Cumulative Impacts on the Perception of Landscape
14.5	Layout Configuration
14.6	Photomontages and Plans

14 LANDSCAPE SEASCAPE AND VISUAL IMPACT ASSESSMENT

14.1 Introduction

14.1.1 This section of the Environmental Statement (ES) provides an assessment of the landscape, seascape and visual impacts of the proposed Kentish Flats Offshore Wind Farm Extension (Kentish Flats Extension).

14.1.2 Landscape/seascape impacts are changes in the landscape/seascape, its character and quality, and differ from visual impacts which relate to the appearance of these changes and the resulting impact on visual amenity.

14.1.3 The Landscape, Seascape and Visual Impact Assessment concentrates on the key landscape and visual issues identified by the Scoping Study (Royal Haskoning, 2010) and during pre-application consultation with stakeholders, in particular Natural England. The key issues identified were:

- Impacts on landscape/seascape resource;
- Impacts on perception of the landscape/seascape; and
- Impacts on visual amenity.

14.1.4 The study area for this assessment is shown in Figure 14.1 (all images are provided separately in Appendix 14.6).

Layout and Design Optimisation

Layout and Design Iterations

14.1.5 The process of scheme optimisation occurred over a two year period and considered all of the environmental constraints. Throughout the optimisation process different layouts and scales of wind turbines were considered. Ultimately, the overall footprint and shape of the site were determined through feasibility work (as described in Section Project Definition, 5.21) taking into account the requirements of The Crown Estate and hard and soft constraints on development (i.e. shipping lanes, fishing grounds, designated sites). The selected overall layout of the Kentish Flats Extension has evolved through a sequence of design reviews, with careful analysis of computer generated wireframes and Zones of Theoretical Visibility (ZTV) Mapping.

14.1.6 The design and layout of the Kentish Flats Extension (as illustrated in Figure 5.5) has been carefully developed to form a simple development that presents a clear relationship with the existing Kentish Flats Offshore Wind farm (Kentish Flats) and as a coherent new feature within the seascape.

14.1.7 A decision has not been reached on the exact design of the scheme. The configuration of the Kentish Flats Extension will depend on a number of

technical and commercial decisions that Vattenfall is not yet in a position to make. A variety of potential layouts therefore remain as possible configurations for the scheme and these are reviewed and illustrated in Appendix 14.5, this review includes all scenarios from 10 to 17 wind turbines and looking at the effect of different wind turbine sizes.

- 14.1.8 The conclusion from the comparison of potential layouts is that the differences between the layouts is minor and nature of landscape, seascape and visual effects will remain substantially similar to those effects assessed in the main assessment (see Appendix 14.5). These scenarios (with the exception of the Siemens 10 wind turbine array) have been reviewed with Natural England (at a meeting on 17th March 2011) and a consensus of agreement was reached on the minor benefits achieved through a lower density of development. However, within the parameters discussed in Appendix 14.5 the minor variations in configuration are acceptable and are accurately reflected by the assessment presented in this section.
- 14.1.9 For the purposes of this assessment the maximum dimensions of the wind turbines are a tip height of 145m and a hub height of 85m. This was considered to be the worst-case scenario in terms of the potential wind turbines that will be available. In addition, the modeled scenario in this assessment includes 17 wind turbines of this size. Whilst it is unlikely that 17 wind turbines of this size will be deployed, it was felt that this represented the absolute worst case scenario both in terms of the size of the wind turbines and the density of the array.

Wind Turbine Selection

- 14.1.10 The viability of the project is determined significantly by the efficiency of the wind turbines selected and the energy that can be harnessed by the wind turbines. The wind turbines selection process will balance the need to maximise outputs for the development whilst minimising environmental impacts. The energy output from wind turbines is directly related to the wind speed. The use of larger blades will allow for maximum harnessing of the wind energy available. Therefore the selection of commercially available wind turbines will focus on wind turbines which satisfy this functional viability need and which also are appropriate to the prevailing seascape context.
- 14.1.11 The final design scheme carefully balances the commercial considerations with a consideration of the local capacity and a scale of development that can be accommodated in this location.
- 14.1.12 The juxtaposition of the proposed development with the existing Kentish Flats wind turbines has been carefully considered to ensure that the difference in the height of the wind turbines between the two schemes is not a significant issue, with the larger wind turbines in the foreground using false perspective to marry in with the wind turbines of the existing array. Furthermore, the alignment of the existing and proposed arrays has also been carefully considered to ensure there is a good fit between the layouts with the wind

turbines aligning with the individual rows of wind turbines. Subject to any micro-siting (which may be necessary due to geotechnical considerations), if less than 17 turbines are installed, the positions of the remaining turbines will not change.

Other Mitigation Measures

- 14.1.13 The proposed wind turbines will make use of a three bladed horizontal axis wind turbines with a tubular steel tower. It is anticipated that the colour of the wind turbines would be a condition of the consent and would be agreed with the IPC. However, it is anticipated that it would be a pale grey with a semi-matt finish in order to: tie in with the existing development; minimise glare; and, reduce the distance over which the wind turbines may be visible, in particular, in dull, hazy or overcast weather conditions.
- 14.1.14 Ultimately, if consented, the development will be decommissioned and the site reinstated with the agreed programme required by the Energy Act 2004.

14.2 Guidance and Consultation

Guidance

- 14.2.1 The Landscape, Seascape and Visual Impact Assessment method has been developed by SKM Enviro and follows good practice guidance and advice on the assessment of the impacts of development on landscape, seascape and visual resources contained in the following documents:
- Guidelines for Landscape and Visual Assessment (Landscape Institute and Institute of Environmental Assessment 1995 and 2nd Edition 2002);
 - Landscape Character Assessment: Guidance for England and Scotland (The Countryside Agency and SNH, 2002);
 - The Guidelines for Environmental Impact Assessment (2004) Institute for Environment Management and Assessment;
 - Guidelines on the Environmental Impacts of Wind Farms and Small Scale Hydroelectric Schemes (SNH 2001);
 - Visual Assessment of Wind Farms Best Practice, University of Newcastle (2002). SNH Commissioned Report;
 - Guide to Best Practice in Seascape Assessment – Countryside Council for Wales, Brady Shipman Martin and University College of Dublin (2001);
 - Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report (Enviro for the DTI 2005);

- Visual Representation of Wind Farms – Good Practice Guidance (2006) Horner and MacLennan and Envision for Scottish Natural Heritage, The Scottish Renewable Forum and the Scottish Society of Directors of Planning;
- Cumulative Effects of Wind Farms, SNH Guidance Note, Version 2 (2005);
- Planning Policy Statement 22: Renewable Energy (Office of the Deputy Prime Minister 2004); and
- Siting and Designing Windfarms in the Landscape, Version 1, December 2009 Scottish Natural Heritage.

Planning Context

- 14.2.2 The following section summarises the most relevant national and local guidance on the potential impacts of wind farm development on landscape and the coastline, which may be used to provide guidance on this issue. Those policies relevant to the Landscape and Seascape Visual Impact Assessment (LSVIA) are set out below and Figure 14.2 identifies the location and extent of any relevant Landscape Policy designations.
- 14.2.3 Furthermore it is noted that the coastal landscape is recognised in the provisions of the European Landscape Convention whose scope “*includes land, inland water and marine areas.*” (Article 2). The European Convention adopted in the UK acknowledges the importance of all landscapes and this chapter provides a comprehensive assessment of the landscapes of the study area, based on the landscape and seascape characterisation described in Appendix 14.3.
- 14.2.4 It should be noted that the onshore works will be covered by a planning application under Section 57 of the Town and Country Planning Act 1990. (as discussed in Section 3 Legislative and Regulatory context, paragraph 3.2.6), but that these are also covered by this assessment.

National Guidance

- 14.2.5 The National Policy Statement for Energy Infrastructure (EN-1) (Department of Energy and Climate Change (DECC), 2011a) has the following statements which are of relevance to landscape/visual amenity:

- 14.2.6 Paragraph 1.7.2 states that:

“The development of new energy infrastructure, at the scale and speed required to meet the current and future need, is likely to have some negative impacts on biodiversity, landscape/visual amenity and cultural heritage ... the impacts on landscape/visual amenity in particular will sometimes be hard to mitigate.”

14.2.7 Paragraph 5.9.1 states that:

“The landscape and visual impacts of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. In this context, references to landscape should be taken as covering seascape and townscape where appropriate.”

14.2.8 Paragraph 5.9.18 states that:

“All proposed energy infrastructure is likely to have visual impacts for many receptors around proposed sites. The IPC will have to judge whether the visual impacts on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project. Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast.”

14.2.9 The National Policy Statement for Renewable Energy Infrastructure (EN-3) (DECC, 2011b) has the following statements which are of relevance to landscape/visual amenity:

14.2.10 Paragraph 2.4.2 states that:

“Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity.”

14.2.11 Paragraph 2.6.200 states that:

“Seascape is an additional issue for consideration. Seascape is a discrete area within which there is shared inter-visibility between land and sea. In some circumstances it may be necessary to carry out a seascape and visual impact assessment (SVIA) in accordance with the relevant offshore wind farm EIA policy.”

14.2.12 Paragraph 2.6.208 states that:

“Where a proposed offshore wind farm is within sight of the coast, there may be adverse effects. The IPC should not refuse to grant consent for a development solely on the ground of an adverse effect on the seascape or visual amenity unless:

- *It considers that an alternative layout within the identified site could be reasonably proposed which would minimise any harm, taking into account other constraints that the applicant has faced such as ecological effects, while maintaining safety or economic viability of the application; or*
- *Taking account of the sensitivity of the receptor(s) as set out in EN-1 paragraph 5.9.18, the harmful effects are considered to outweigh the benefits of the proposed scheme.”*

- 14.2.13 Planning Policy Statement (PPS) 22: Planning For Renewable Energy does not provide any specific guidance on the impacts of offshore wind farms on landscape. PPS 22 does, however, set out the following considerations which are relevant to the impacts of the proposed Kentish Flats Extension on the wider landscape (paragraph 20):

“Local authorities should recognise that the impact of turbines on the landscape will vary according to the size and number of turbines and the type of landscape involved.”

Local Planning Guidance

- 14.2.14 The Kentish Flats Extension will be located approximately 7.8km offshore (from the closest land at Swalecliffe), and therefore it is outside the jurisdiction of any of the local planning authorities. The following policies are relevant to the onshore component of the development, comprising the export cable connecting to the existing substation at Red House Farm, which lies within Canterbury District.

Canterbury District Local Plan, 2006

- 14.2.15 With relevance to the proposed minor onshore works Policy NE5 states that:

“Development should be designed to retain trees, hedgerows, woodland or other landscape features that make an important contribution to the amenity of the site and the surrounding area and which are important to wild flora and fauna. The City Council will refuse planning permission for proposals that would threaten the future retention of trees, hedgerows, woodland or other landscape features of importance to the site’s character, an area’s amenity or the movement of wildlife.”

- 14.2.16 In this regard the existing mitigation planting surrounding the substation site at Red House Farm will be retained and enhanced to protect visual amenity and support the aims of Policy NE5.

- 14.2.17 Furthermore, it is acknowledged that the existing substation site is adjacent to a designated Special Landscape Area (SLA). The Council’s objective is to preserve and enhance the distinctive landscapes of the Canterbury District. Policy R6 states that

“In considering applications for development within these areas the Council will give priority to the conservation and enhancement of the natural beauty of the landscape over other planning considerations, whilst having due regard to the economic and social well being of the area. Development proposals which would cause unacceptable harm, will not be permitted.”

14.2.18 Whilst the proposed development is beyond the boundary of the SLA the existing mitigation planting associated with the development will be retained and managed to continue to integrate the development with the wider landscape setting.

Scoping

14.2.19 A critical aspect of the EIA process is to undertake a thorough and rigorous scoping study which identifies environmental sensitivities relative to the proposed wind turbines and to present the proposed scope of the LSVIA in order to address these issues. LSVIA scoping for the proposed Kentish Flats Offshore Wind Farm Extension was carried out in October 2010, and the information provided to consultees included a draft zone of theoretical visibility (ZTV) and a list of suggested viewpoints with grid coordinates, which it was proposed would be assessed within the LSVIA. A list of constructed, consented and proposed wind farms to be included in the cumulative assessment was also provided.

14.2.20 The scope of the cumulative assessment was updated in January 2011 following the receipt of scoping responses as compiled by the IPC in December 2010. The final scope of the assessment was discussed and agreed between Natural England and SKM Enviro Landscape Architects at a meeting on March 2011 and subsequent written correspondence, confirming details of the viewpoints to be assessed within the LVIA and the other existing and proposed wind farms to be assessed cumulatively.

Table 14.1: Summary of consultation and issues

Date	Consultee	Summary of issue	Section where addressed
December 2010	IPC	<p>3.63 The Commission considers that impacts associated with any night time lighting should be assessed for the construction, operation and decommissioning phases. The assessment should include the need for aviation and navigation warning lights.</p> <p>3.64 The Commission welcomes the inclusion of the landscape, seascape and visual character assessment as a key consideration within the ES. The Commission agrees with comments made by NE that the assessment should consider views from land to sea, sea to land, sea to sea and land to land.</p> <p>3.65 The Commission notes the intent to consider the cumulative impacts associated with other developments in the vicinity and recommends that these be discussed and agreed with NE and the relevant local authorities</p> <p>3.66 The Commission notes the comments made by NE in relation to viewpoints and it is suggested that these locations should be agreed with the relevant bodies.</p>	<p>14.6.3-4</p> <p>14.9</p> <p>Appendix 14.4</p> <p>14.2.8</p>
December 2010	Canterbury Council	An assessment of the visual impact on the North Kent Coast and particularly from the towns of Whitstable and Herne Bay.	14.9
December 2010	Dover District Council	<p>Request for the landscape and visual impact assessment to include photomontages to be prepared from at least one of the following locations:</p> <ul style="list-style-type: none"> • Junction of the B2046 (Aylesham) with Spinney Lane (Grid reference 622560 151340) • A2 (Dover), near the junction with Coldred Hill (Grid reference 626900 146400) 	These viewpoints were discussed with Natural England and discounted as part of the assessment based upon their distance from the extension and the not significant nature of impacts from the proposed locations.

Date	Consultee	Summary of issue	Section where addressed
December 2010	English Heritage	General comments and reference to need to refer to Historic Landscape Characterisation and European Landscape Convention.	Appendix 14.3
December 2010	Kent County Council	The visual assessment should include an assessment on the impact on the setting of significant heritage assets such as Reculver. The visual impact on the World War II platforms at Red Sands Fort should be considered.	14.9.15
December 2010	Natural England	<p>The Cumulative Impact Assessment would take into account: Existing completed projects</p> <ul style="list-style-type: none"> ■ Approved but uncompleted projects ■ Ongoing activities ■ Projects in Planning ■ Plans and projects which are reasonably foreseeable <p>The assessment should give consideration to views from land to sea, sea to land, sea to sea and land and land.</p> <p>In addition, all landscapes and seascapes have distinctive characteristics that give them a strong sense of place. The LSVIA should have regard to these qualities, the special characteristics.</p> <p>With regard to the selection of viewpoints, we note the developer proposes four viewpoints (Table 5.2), which were 'regarded as being significant' in the ES for the existing project. Given that the extension wind turbines will be closer to shore and may be taller than the existing wind turbines, we consider the developer should review all the viewpoints listed in Table 5.2 in order to assess the magnitude and significance of change, before viewpoints are scoped out of the LSVIA. In addition we emphasise the importance of exploring and identifying the range of other visual receptors in the study area.</p> <p>Accurate maps of protected sites and designated sites should be included in the ES. Protected landscapes must be assigned the highest level of sensitivity</p>	<p>Appendix 14.4</p> <p>14.9</p> <p>14.8</p> <p>Additional viewpoints have been included in the assessment to ensure an appropriate number, type and geographical spread of receptors are considered. In total 14 viewpoints were assessed as agreed through further correspondence with Natural England. See Section 14.11.</p> <p>14.4.22</p>

Date	Consultee	Summary of issue	Section where addressed
		<p>in the LVIA.</p> <p>We understand that the Kentish Flats Extension is for all landward components to be in pre-developed sites with cabling buried beneath tarmac surfaces, in which case we accept that visual impact of the onshore elements of the project is likely to be minimal. If, however, any new roads or infrastructure are required these should be incorporated into the visual assessment.</p>	14.5

14.2.21 A draft ES was provided to the consultees under section 42 of the Planning Act 2008 in May 2011 and included a draft of the LSVIA. Responses were received and some additional revisions made to the assessment. A summary of the further issues raised is set out in Table 14.2 below:

Table 14.2: Summary of consultation and issues

Date	Consultee	Summary of issue	Section where addressed
May 2011	Natural England	<p>There has not been a review of the original 13 viewpoints as requested during initial consultation.</p> <p>It would be good to see the criteria/methodology for judging the quality of the Seascape Character Areas.</p> <p>Judgements made on the significance of the impacts need to be made clear and explicit i.e. include both the level and nature of the impact (adverse, neutral, beneficial).</p>	<p>All original viewpoints now assessed in section 14.11.</p> <p>See additional commentary in Appendix 14.3</p> <p>Paragraph 14.3.4 also see Appendix 14.1, Paragraph 14.1.38.</p>
May 2011	Kent County Council	<p>Should the ES refer to the implications of this scale of development in terms any precedent for replacing the existing turbines in the future?</p> <p>Re: Red Sands Fort (VP5) and Reculver (VP4). Recommends that additional assessment should be undertaken by an appropriate cultural heritage specialist of the impact of this change on the setting of the Red Sands Fort and the Scheduled Monument at Reculver.</p>	<p>Unlikely and beyond the scope of this assessment.</p> <p>Additional assessment completed in the Cultural Heritage Chapter.</p>

Date	Consultee	Summary of issue	Section where addressed
June 2011	English Heritage	<p>The draft ES does not reference the Council of Europe European Landscape Convention Action Plan published by English Heritage or our programme of producing Historic Seascape Characterisation studies.</p> <p>Ensure the overall seascape methodology adopted for this project takes adequate account of cultural heritage. In particular we note that section 14.4.2 to 14.4.9 includes cultural heritage, but does not provide characterisation per se.</p>	<p>Paragraph 14.2.3</p> <p>Appendix 14.3</p>

14.2.22 The cumulative assessment was also updated in July 2011, acknowledging the planning permission granted to the Middlewick Wind Farm and the new planning application submitted in the study area for the proposed HMP Stanford Hill Turbines.

14.3 Methodology

Landscape, Seascape and Visual Impact Assessment Methodology

14.3.1 The section is supported by Technical Appendix 14.1, which contains a detailed description of the method of assessment.

14.3.2 The general approach to the LSVIA includes the following key tasks which are described in detail below:

- Desk study and preliminary site survey;
- Confirmation of scope and methodology with the IPC and other consultees;
- Baseline assessment of landscape, seascape and visual resources (consisting of desk study, field survey and reporting);
- Assessment of residual landscape, seascape and visual impacts; and
- Assessment of cumulative landscape, seascape and visual impacts.

14.3.3 The assessment focussed on a 35km radius study area, centred on the combined interlocking footprint of Kentish and the Kentish Flats Offshore Extension. The 35km radius site centred study area was selected as it encompasses a 30km radius around each of the existing and proposed turbines comprising the extended Kentish Flats.

14.3.4 The significance of any identified landscape, seascape or visual impact has been assessed as major, moderate, minor or no impact. These categories have been determined by consideration of viewpoint or landscape/seascape sensitivity and predicted magnitude of change as described in Appendix 14.1, with the following matrix used as a guide to correlating sensitivity and magnitude to determine significance of impacts. It should be noted that significant effects need not be adverse and may be either negative or positive and also may be reversible. Receptors may have a strongly adverse or positive response to this type of development and therefore no judgement is made with regard to the valency of landscape/seascape and visual effects.

Table 14.3 Significance of impacts on the landscape/seascape resource and visual receptors

Landscape, seascape and visual sensitivity	Magnitude of change/impact			
	Substantial	Moderate	Slight	Negligible
High	Major	Major/Moderate	Moderate	Moderate/Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Minor/None
Negligible	Moderate/Minor	Minor	Minor/None	Minor/None

14.3.5 The matrix is not used as a prescriptive tool, and the methodology and analysis of potential impacts at any particular location must make allowance for the exercise of professional judgement. Thus, in some instances, a particular parameter may be considered as having a determining impact on the analysis.

14.4 Existing Environment

14.4.1 It is important to place the existing, baseline landscape and seascape in its proper context, describing the historical and cultural context within the study area and identifying both sensitive locations and receptors to be addressed in the subsequent impact assessment. Much of this information is presented in greater detail in other relevant sections of this ES (i.e. Section 8 Nature Conservation Designations, Section 16 Maritime Archaeology, Section 28 Socio-economics), but a review of the local coastal area in relation to its amenity use and conservation designation status is briefly summarised below in order to provide a more accessible context for the baseline description of the landscape and seascape. A detailed description of the landscape and seascape baseline is presented in Appendix 14.3.

Historic and Cultural Heritage

14.4.2 The study area has nationally important archaeological sites of many periods forming a complex historical landscape of considerable depth.

Bronze Age

- 14.4.3 The area provides extensive evidence of the activity of the hunting groups that roamed across these plains. A large number of flint tools have been discovered in intertidal flats off the coast of Thurrock and Herne Bay and on the former Isle of Thanet, indicating that much of the landscape formerly available to hunting and gathering groups is now below current sea level. Similarly, many coastal Bronze and Iron Age sites have been found within the intertidal zone, for example at Minnis Bay. Evidence of medieval salt-making mounds has also been found on the edge of the Kent marshes, in particular on the Isle of Sheppey.

Roman – Norman

- 14.4.4 The Roman influence on the landscape is still clearly evident, including the Roman roads linking Dover to Sandwich and from Margate to Canterbury, and the extensive remains at Reculver, Faversham, Canterbury and the surrounding area. Following the withdrawal of the Romans in AD410, dioceses were created at both Canterbury and Rochester within the study area, and monasteries were established at a number of coastal sites, including Minister-in-Sheppey, Reculver and Shoebury.
- 14.4.5 There are many reminders of the Norman invasion in this area, including the well-preserved castle at Rochester. The Normans encouraged trade and prosperity and by the end of the 12th century, Sandwich was exporting wool to the cloth industry in Flanders and receiving luxury Mediterranean goods brought by Venetian galleys. However, proximity to the continent also brought vulnerability and Sandwich was raided by the French in 1497, despite the protective wall constructed around the town's perimeter in the 14th century. Dramatic coastal changes took place during the 14th and 15th centuries, resulting in Sandwich being blocked by silting of the Stour estuary and ending its career as an important British port.

Maritime and Coastal

- 14.4.6 The region has a long maritime history stretching back to the 17th century, reflecting its commercial, military and political importance. Once London became recognised as the political centre of the UK, the region's coastal towns became embarkation ports for monarchs and assembly points for their fleets. In addition, the distinctive Thames barges were once built at locations throughout the area, including Faversham, Conyer, Sittingbourne and Rochester, for use in the region's shallow rivers and estuaries.
- 14.4.7 Fishing was also an important industry, with oyster cultivation thriving from the 18th century at Whitstable. As a result of fishing and trade links with Europe, vast numbers of ships passed down the east coast and the region has one of the greatest concentrations of recorded wrecks in Britain.

- 14.4.8 Coastal fortifications in the region have long been the key to Britain's defence and the surviving structures preserve many nationally important examples of military engineering. This includes the Maunsell Sea Forts located within the Thames Estuary near the proposed wind farm site. The forts were erected during World War II as a defence for the London Docks. Within the area of study, only one naval tower, known as Knock John, still exists, located 11 miles off Herne Bay. The total height of the fort is 33.5m, although much of this lies below sea level.
- 14.4.9 Similarly, two out of three of the groups of army forts are still present. The Shivering Sand Group, consisting of six of the original seven towers, lies approximately seven miles off Herne Bay, whilst the Red Sands Group of seven towers is situated directly off Minster on the Isle of Sheppey, but visible from Herne Bay.

Transport Routes

Road

- 14.4.10 The main road network in the study area comprises:
- The M2 which runs west to east approximately 18km to the south of the site;
 - The A2 which runs from west to east from Rochester, joining with the M2 at Faversham and continuing as a dual carriageway to Dover;
 - The A28 trunk road which links Ashford in the south, via Canterbury, to Margate in the north;
 - The A299 which links Faversham with Margate;
 - The A249 dual carriageway linking Maidstone with Sheerness; and
 - The A13 trunk road linking London in the west to Southend-On-Sea and the Essex Coast in the east.

Rail

- 14.4.11 The main railway routes in the region follow similar routes to the main road network. A line connects London to the north Kent coastal towns, passing close to the coast at Seasalter and Minnis Bay. There are branch lines to the Isles of Grain and Sheppey. The main line continues south from Margate to Dover, with an additional line subsequently branching off to the southwest through the Stour Valley towards Canterbury. In Essex, the main line runs from London to Southend-on-Sea with branch lines to Tilbury and Stanford le Hope.

Ferry

14.4.12 Ramsgate is a major continental ferry port with links to Ostend.

National Cycle Network

14.4.13 The following two National Cycle Routes pass through the study area, their locations are marked on Figure 14.2:

- National Cycle Route 1: The southern section of this route passes through the study area following the north Kent coast passing through Canterbury, Rochester and Dartford; and
- National Cycle Route 18: This route links into Route 1, leading west from Canterbury, via Ashford and continues west.

Long Distance Footpaths

14.4.14 The North Downs Way passes through the study area following the line of the North Downs. From west Kent the trail passes close to Rochester as it crosses the River Medway and continues along the Downs north of Maidstone, Ashford and Folkestone to end at Dover. There is a loop at the eastern end of the trail to Canterbury.

14.4.15 The Saxon Shore Way long distance walking route is named after the line of historic fortifications that defended the Kent coast at the end of the Roman era. This 257km long route leads from Gravesend, in north Kent, to the seaside town of Hastings in East Sussex.

14.4.16 St Peter's Way is a long distance footpath, 65km in length, running from Ongar to the Dengie Peninsula near Bradwell-on-Sea, Essex. Starting in Ongar the trail runs eastwards through agricultural land visiting many historic Essex villages and the Blackwater estuary on the way. At Tillingham, the route traverses the Essex Marshes and joins the coastal footpath heading north to the site of St Peter-on-the-Wall.

Tourism and Recreation

14.4.17 The following are the key amenity uses of the coastal area:

- Walking;
- Cycling;
- Sailing;
- Sea angling;

- Bird watching;
- Wildlife centres;
- Beaches; and
- Golf.

14.4.18 Within the study area there is a wide diversity of tourist attractions. The seaside resorts around the coastline of the Thames Estuary and the English Channel, the Kent countryside and Canterbury all attract large numbers of visitors to the area.

14.4.19 Several traditional Victorian seaside resorts are located within the study area, in particular, Whitstable, Herne Bay, Margate, Ramsgate, Broadstairs and Southend-On-Sea. These resorts became popular following the introduction of new rail routes and steamboats from London and peaked in popularity in the late Victorian period. The resorts have traditional attractions such as pleasure beaches and amusement parks and featured the two longest seaside piers in Britain at Southend and the now partly dismantled Herne Bay pier. Margate and Herne Bay in particular have benefitted from recent regeneration schemes with a new marina built in Herne Bay and a new museum, The Turner Contemporary, which opened in April 2011 in Margate.

14.4.20 Inland, the city of Canterbury is a major tourist attraction with many historic buildings including Roman city walls, a ruined abbey and a Norman Castle. Canterbury Cathedral is the seat of the head of the Church of England and is designated a World Heritage Site. The Cathedral was founded in the 6th century by St Augustine and later in the 12th century Archbishop Thomas Becket was murdered there. The Cathedral was also the destination for the pilgrims in Geoffrey Chaucer's Canterbury Tales and continues to attract thousands of pilgrims to the city.

14.4.21 The Kent countryside offers many opportunities for tourism and recreation including the route of the National Trail, the North Downs Way, numerous Registered Parks and Gardens and the National Fruit Collection at Brogdale near Faversham. The Kent and Essex coastlines with their salt marsh landscapes are home to many coastal wildfowl and wader populations and there are several nature reserves within the study area with associated visitor facilities for birdwatchers. The Thames Estuary, the Medway and the English Channel also attract boat owners and yachting enthusiasts. Whitstable hosts a popular regatta and many of the coastal settlements have marinas and yachting facilities.

World Heritage Sites

14.4.22 World Heritage Sites (WHS) are places of outstanding universal importance to humankind, both cultural and natural. Some sites have attributes which are both cultural and natural. In 1972, (United Nations Educational, Cultural and Scientific Organisation) drew up the World Heritage Convention under which

governments of member states identify such sites and put them forward to the World Heritage Committee to be inscribed on a list maintained by UNESCO.

Canterbury Cathedral, St Augustine's Abbey, and St Martin's Church

- 14.4.23 To the south of the study area and within the urban perimeter of Canterbury are three distinct cultural properties that are on the World Heritage List: St Martin's Church; the ruins of St Augustine's Abbey; and Christ Church Cathedral. The location of Canterbury's World Heritage site is shown on Figure 14.2, 17.7km to the south of the nearest wind turbine..

Landscape Designations

- 14.4.24 Landscape designations are important in the context of the landscape and visual assessment of the proposed offshore wind farm. The proposed Kentish Flats Extension will not affect the landscape fabric of any of the designations since it is sited offshore. The potential impacts of the proposed development on the landscape quality and visual amenity of the following designated areas are discussed in the assessment.
- 14.4.25 Internationally designated landscapes include World Heritage Sites. Landscapes designated at the national scale include National Parks, Areas of Outstanding Natural Beauty and Heritage Coasts in England. Parts of the southern study area are subject to designation as Areas of Outstanding Natural Beauty for their landscape quality. The location and extent of these designations are shown in Figure 14.2 and are described below.

Areas of Outstanding Natural Beauty (AONBs)

- 14.4.26 AONBs were created at the same time as National Parks in 1949. There are 40 across England and Wales and as with the National Parks they are areas of countryside with a high scenic quality. AONBs are legally protected landscapes but unlike the National Parks, their designation does not include recreational criteria and they are looked after by partnerships between local communities and relevant local authorities.
- 14.4.27 For the purposes of the landscape, seascape and visual assessment Areas of Outstanding Natural Beauty are considered to be of a high sensitivity to change associated with the proposed development.
- 14.4.28 The only AONB located within the study area is the Kent Downs AONB, which covers an area of 878km² and was designated in 1968. The Kent Downs are characterised by their rolling hills, steep slopes and sculpted dry valleys, forming a typical chalk landscape. Areas of open short-turfed grassland rich in orchids and other flora are the result of intensive sheep grazing and give the Downs their characteristically smooth profile. In contrast,

the western area of the Downs is much more heavily wooded. The location and extent of the North Downs AONB in the context of the study area is shown on Figure 14.2, 19.2km to the south of the Kentish Flats Extension at its nearest point.

Historic Battlefields

14.4.29 There are no designated Historic Battlefields within the study area.

Registered Parks and Gardens

14.4.30 There are twelve Registered Parks and Gardens within the study area all of which have been considered in this assessment as summarised in the Table below. These are described in detail in Appendix 14.2 and their locations are shown on Figure 14.2.

Table 14.3 Registered Parks and Gardens assessed in the Kentish Flats Offshore Wind Farm Extension LSVIA

Park and garden	Approximate distance and direction to wind farm
Doddington Place	25.5km to the southwest
Belmont Park	23.5km to the southwest
Lees Court	21.3km to the southwest
Mount Ephraim	16.7km to the south
Dane John Gardens	18.5km to the south
Chilham Castle	23km to the southwest
Godmersham Park	24.8km to the southwest
Albion Place Gardens	23.7km to the southeast
The Salutation	24km to the southeast
Goodnestone Park	23km to the southeast
Broome Park	27.5km to the south
Olantigh Towers	27.6km to the southwest

14.4.31 For the purposes of the landscape, seascape and visual assessment these Registered Parks and Gardens are considered to be of a high sensitivity to change associated with the proposed development.

Scheduled Ancient Monuments

14.4.32 Although there are many Scheduled Monuments within the study area, none are located sufficiently close to the site to necessitate inclusion in the LSVIA.

However, due to the prominent siting of St Mary's Church at Reculver it was considered appropriate to include this location as a key viewpoint in the LSVIA.

- 14.4.33 St Mary's Church stands on a headland above the Saxon Shore Way at Reculver. The site, formerly a roman fort, was developed as an early Christian Centre and gradually enlarged and improved between the 8th and 15th centuries. The whole site is now a Scheduled Monument and is in the guardianship of English Heritage. For the purposes of the visual assessment visitors to St Mary's Church are considered to be high sensitivity receptors.

14.5 Description of Existing Landscape Resource and Character Areas

National Scale Landscape Resources and Character – Countryside Character Areas

- 14.5.1 The Countryside Agency, now part of Natural England, prepared a Landscape Character Map of England in 1996, which defines national scale landscape areas across the whole of England. The landscape character on the mainland is described in Natural England's publication Countryside Character Volume 7: The South East.

- 14.5.2 The 35km LSVIA study area coincides with five Joint Character Areas (JCA). However, one of these JCA's, Wealden Greensand JCA:120 on the southern boundary of the study area, coincides with only a very small section of the study area and shows no theoretical visibility from the proposed Kentish Flats Offshore Wind Farm Extension and therefore has not been considered further in this assessment. Summary descriptions of the following 4 National Landscape Character Areas are described in detail in Appendix 14.3 and their locations are shown on Figure 14.3:

- Greater Thames Estuary (JCA 85);
- North Thames Basin (JCA 111);
- North Kent Plain (JCA 113); and
- North Downs (JCA 119)

Baseline Seascape Assessment

- 14.5.3 National seascape units can be defined as 'extensive sections of coast with an overriding defining characteristic such as coastal orientation or landform'. In general these units are defined by major headlands of national significance and extend up to 24km offshore.

- 14.5.4 Although no national seascape units have been identified, the CCW Guidelines¹ propose that Coastal Management Units (CMUs) could form the basis for the national units for the UK.
- 14.5.5 In relation to the Kentish Flats Extension study area, the Thames Estuary has been identified as an appropriate National Seascape Unit. The Thames Estuary Seascape is characterised by intensive maritime activity, including commercial shipping, passenger ferry services and recreational uses. The area bears many remnants of naval and military forts, highlighting the estuary’s historical importance as a strategic shipping route linking London with the North Sea and the many ports to be found throughout the estuary. The estuary is one of the busiest shipping channels in the UK.
- 14.5.6 The national seascape unit can be sub-divided and assessed at a more regional level. Regional areas have been identified by SKM Enviro for the purposes of this assessment on the basis of visually distinct sections of coast, views from land to sea and sea to land, topography and seascape character.
- 14.5.7 The baseline assessment provides a description of the defining characteristics of each regional seascape area, which have been derived from field and desk survey work. These include:
- The physical form of marine area, coastline and hinterland;
 - The extent of landward and seaward boundaries;
 - The nature of views from sea to land and the views from land to sea;
 - Activities and receptors;
 - Aesthetic factors;
 - Designated landscape; and
 - Scale of landscape.
- 14.5.8 The quality of each of the regional seascape areas has been evaluated and key characteristics considered. The sensitivity of each of the identified regional seascape character areas to change of the nature associated with the proposed offshore wind farm extension has also been evaluated and classified as high, medium or low using the methodology described in Appendix 14.1. The coastline within the study area has been subdivided into twelve seascape areas as summarised in Table 14.3 and as described in detail in Appendix 14.3. The location of the seascape areas are illustrated on Figure 14.4.

¹ Guide to Best Practice in Seascape Assessment – Countryside Council for Wales, Brady Shipman Martin and University College of Dublin (2001)

14.4 Summary of baseline seascape character areas

Character area	Sensitive receptors	Views	Quality	Sensitivity to change
Sandwich Bay	Residents, Visitors, Tourists, Recreational users of the sea, Road users	Open at coastal edge. Short to medium inland	Medium	Medium
Northeast Kent Cliffs	Residents, Visitors, Tourists, Recreational users of the sea, Road	Open vistas seaward. Short to medium inland	Medium to low	Medium
North Kent Shoreline	Residents, Visitors, Tourists, Recreational users of the sea, Road users	Open vistas seaward. Short to medium inland	Medium to low	Medium
The Swale	Residents, Visitors	Short to medium.	Medium	Low
The Isle of Sheppey	Residents, Visitors, Tourists, Recreational users of the sea, Road users	Open vistas seaward. Short to Medium inland	Low/ Medium	Medium/ Low
The Medway Estuary	Residents, Visitors, Recreational users of the sea	Short to medium	Medium to low	Low
River Thames	Residents, Visitors, Recreational users of the sea	Open at coastal edge. Short to medium inland	Low	Medium
Southend-on-Sea to Shoeburyness	Residents, Visitors, Tourists, Recreational users of the sea, Road users	Open at coastal edge Short to medium inland.	Low	Medium
Shoeburyness to Foulness Point	Residents, Visitors, Recreational users of the sea	Open at coastal edge. Short to medium inland	Medium	Medium/ Low
River Crouch	Residents, Visitors, Road users	Short to medium	Medium	Low
East Essex Marshes	Residents, Visitors, Recreational users of the sea, Road users	Open at coastal edge. Short to medium inland	Medium	High/Medium
Tendring Peninsula	Residents Recreational users of the sea.	Open vistas seaward. Medium inland	Medium/ Low	Medium/Low

Visual Resources

14.5.9 A key component of the assessment is the appraisal of impacts from key locations within the study area. Following a site visit and desk based study, it

was recognised that principal views in the area would be from coastal edge to the south of the proposed extension which afford the closest panoramic views across the area of sea forming the context to the development. In addition a viewpoint representative of the views experienced by shipping traffic using the principal shipping lane and recreational sail boat users in the area was considered.

- 14.5.10 Viewpoints for the visual assessment were then identified following production of the ZTV and a short list of viewpoints were selected and confirmed to consultees as part of the scoping exercise. Additional viewpoints were added following this scoping exercise and the section 42 consultation. The final list of agreed viewpoints is shown in Table 14.5 and photographs and/or wireframes of the existing views from these viewpoints are shown in Figures 14.9 to 14.22. Their locations are illustrated in Figure 14.5.
- 14.5.11 Viewpoints were visited as part of the baseline visual assessment and panoramic photographs of the existing views have been taken. The existing and predicted views of the Kentish Flats Extension are described in the assessment. Photographs with matching wireline drawings and photomontage visualisations showing the wind turbines accompany the text. Visualisations have been produced with a viewing distance of 300mm to allow the context of the view to be shown. A 35mm digital SLR camera with a fixed 50mm lens (or equivalent), mounted on a tripod, has been used for viewpoint photography. This complies with best practice guidance in Guidelines for Landscape and Visual Impacts Assessment, 2002 (IEMA/LI) and Visual Representation of Windfarms – Good Practice Guidance, 2006 (SNH).

Table 14.5 Final viewpoint locations for the Kentish Flats Extension LSVIA

Viewpoint number	Description	Viewpoint rationale/receptors	Distance to the extension (km)	Grid reference
1	Whitstable Tankerton / Saxon Shore Way	To provide representative views from the seafront at Whitstable including the Saxon Shore Way <ul style="list-style-type: none"> ■ Local Residents ■ Visitors ■ Walkers 	8.7	TR 11656, 67241
2	Whitstable, Borstal Hill	To provide representative views from residential areas in Whitstable <ul style="list-style-type: none"> ■ Local Residents ■ Road Users 	11.0	TR 10485, 65164
3	Herne Bay Museum / Saxon Shore Way	To provide representative views from Herne Bay and for visitors to the seafront. <ul style="list-style-type: none"> ■ Local Residents ■ Visitors 	8.3	TR 17765, 68495
4	Reculver / Saxon Shore Way	To provide representative views from the sea front at Reculver, including the Saxon Shore Way and historical sites at Reculver. <ul style="list-style-type: none"> ■ Local Residents ■ Visitors ■ Walkers 	9.9	TR 22574, 69317
5	Red Sands Fort	To provide a representative offshore viewpoint to reflect the views experienced by shipping and recreational sailing craft.	3.2	TR 07886,79616
6	St Peter's Chapel (Also on St Peter's Way)	To provide representative views from North Essex coastline and to provide cumulative assessment with proposed wind farm at Gunfleet Sands. <ul style="list-style-type: none"> ■ Local residents ■ Visitors to St Peter's Chapel ■ Users of St Peter's Way 	30.4	TM 03187, 08271
7	Pier at Southend-on-Sea	To provide representative views from Southend. <ul style="list-style-type: none"> ■ Local residents ■ Visitors 	22.4	TQ 88975, 83090
8	Warden	To provide representative views from visitor destinations and residential areas on the Isle of Sheppey. <ul style="list-style-type: none"> ■ Local residents ■ Visitors 	10.9	TR 02382, 71806

Viewpoint number	Description	Viewpoint rationale/receptors	Distance to the extension (km)	Grid reference
9	Margate Pier	To provide representative views from the seafront in Margate and from the proposed Turner Gallery/Museum on Margate Pier. <ul style="list-style-type: none"> ▪ Local residents ▪ Visitors 	17.9	TR 35123, 71186
10	North Downs Way, crossing of B2046 near Aylesham.	To provide representative views for users of the North Downs Way and for receptors in the Kent Downs AONB. <ul style="list-style-type: none"> ▪ Walkers ▪ Visitors ▪ Local residents 	26.4	TR 22220, 50907
11	Seafront Shoeburyness, near Gunners Road	To provide representative views from Essex coastline. <ul style="list-style-type: none"> ▪ Local residents ▪ Visitors 	17.8	TQ94199, 84852
12	Thanet, A256 near Westwood	To provide representative views from the elevated land on the Isle of Thanet. <ul style="list-style-type: none"> ▪ Local residents ▪ Road users 	20.1	TR 35800, 67732
13	Footpath at Ham Marshes, Faversham	To provide representative views from Faversham and surrounding settlements and from the main transport corridor. <ul style="list-style-type: none"> ▪ Local residents ▪ Road Users 	17.5	TR 01802, 62896
14	Seafront Sheerness	To provide representative views for residents in Sheerness and visitors to the Isle of Sheppey. <ul style="list-style-type: none"> ▪ Local Residents ▪ Visitors 	18.9	TQ 92102, 75072

14.6 Potential Impacts during Construction

Offshore Works

14.6.1 Several aspects of the construction phase have the potential to affect landscape, seascape and visual amenity:

- Operation of vessels and cranes at sea;
- Installation of wind turbines and foundations by jack-up barges;
- Transportation of wind turbines components to site by barge and movement of other supply vessels;
- Pre-assembly and storage of wind turbine components to nearby port (if selected);
- Lighting of construction vessels and construction working areas at night; and
- Laying of additional cables from the wind farm extension to the landfall at Hampton Pier and the formation of an additional underground cable run from Hampton Pier to the Red House Farm Substation.

14.6.2 The impacts of the construction phase of the Kentish Flats Extension will be temporary and affect a limited part of the application site, with the main activities taking place at distances of over 5km from the coast. The Outer Thames Estuary is also one of the busiest sea areas around the coast of the UK, and therefore there is constant movement of sea going vessels in this area.

14.6.3 As construction activities offshore will be continuous, there will be lighting as agreed with Trinity House at the places where work is being carried out to enable work to continue outside of daylight hours. The lighting will be focused on specific and limited areas, and will not be diffuse. Whilst this lighting may be visible from the shore, it is not anticipated that it could give rise to a significant visual impact, which is largely a result of its temporary nature.

14.6.4 The offshore construction phase of the wind farm will introduce more activity into this busy waterway over an anticipated 4 month period, but it is not considered that this will have a significant impact on the landscape, seascape or visual amenity of the study area.

Onshore Works

14.6.5 A description of the onshore works associated with the Kentish Flats Extension are set out in detail in Section 5 Project Definition, Figure 5.11

shows detail of the onshore cable corridor. Note that although this information provided on the onshore works, these works are not included within the Development Consent Order (DCO) application, but will be the subject of a separate planning application to Canterbury City Council:

Red House Farm Sub Station

- 14.6.6 Very minor works are required within the boundary of the existing Red House Farm substation. These works are planned within the existing substation footprint and no changes are proposed to affect the established vegetation forming the substation boundary. In this regard the changes proposed will have a negligible magnitude of change on the character and qualities of the prevailing landscape and will not give rise to significant impacts and thus, in this regard, no additional assessment is considered appropriate.

Transition Pit and Onshore Cable Laying

- 14.6.7 The construction activities associated with the landfall and onshore transition pit at Hampton Pier will have a very limited visual influence, extending only as far as the beach in the immediate vicinity of the landfall and the pier where the onshore transition pit is located.
- 14.6.8 The open trenching and cable laying for the onshore cable route of the Kentish Flats Extension will follow the existing onshore cable route, which runs from the southern end of Hampton Pier Avenue, turning west along Whitstable Road for approximately 150m, before joining a minor road, Westbrook Lane. It is then proposed that the cable will run along Westbrook Lane, under the railway line (by an existing tunnel), past the local recycling depot and municipal tip, before reaching the old Thanet Way. The cable will be buried under the old Thanet Way to join Thornden Close and then run along Thornden Wood Road, which is a minor road, for a few hundred metres. The total landward cable route is approximately 2km in length.
- 14.6.9 The construction activities will have a temporary and localised impact on the local townscape character along Hampton Pier Avenue, and the route defined above for the onshore cable works. The vehicles on site would consist of excavators, safety vehicles, delivery vehicles and road-paving machinery. However, it should be noted that there is already vehicle movement in the vicinity of the landfall, along the route of the onshore cable and within the car park at the junction of Hampton Pier and the Western Esplanade. There will be the requirement for temporary fencing around the excavation works.
- 14.6.10 The onshore construction activities associated with the landfall, onshore transition pit and cable laying will be visible from only a short distance around the works. Visual receptors in the vicinity of these works, which may experience temporary visual impacts include: walkers along the Saxon Shore Way and which runs along the coastal edge; beach users park; road users and neighbouring residential properties.

- 14.6.11 The construction activities will only be visible for a maximum of 90 - 100 days. The works will result in a slight magnitude of change to these views and therefore they will only have a **moderate** impact on visual amenity experienced by the visual receptors identified above, and this will be temporary in nature, in this regard no additional assessment is considered appropriate.
- 14.6.12 During construction of the cable landfall, cable laying and onshore transition pit, best practice construction methods will be employed to ensure the construction site is maintained in as tidy a state as possible. Other mitigation measures relate primarily to the restoration of the land over the top of the cable trench and onshore transition pit.

Summary

- 14.6.13 In summary there will be locally significant short term impacts on the Landscape/Seascape Character and Visual Amenity during the construction period. This phase has therefore not been considered in any further detail in the following assessment.

14.7 Potential Impacts during Operation

- 14.7.1 The wind turbines type used for the purposes of this assessment of the Kentish Flats Extension have a height to blade tip of 145m, a maximum hub height of 85m.
- 14.7.2 The other details of the proposed wind turbines and lighting are provided in Section 5 Project Definition.
- 14.7.3 Several aspects of the operation of the wind farm have the potential to affect landscape, seascape and visual amenity and may be summarised as follows:
- Operation of the wind turbines (physical presence and movement of blades)
 - Lighting of the wind farm at night;
 - Operation of maintenance vessels; and
 - Offshore maintenance and repairs involving barges and/or cranes.
- 14.7.4 Although the Kentish Flats Extension will introduce a new group of lit structures into the Outer Thames Estuary, which will be visible from the coastlines of Kent and south Essex, the lights will be seen at night in the context of the existing wind turbines, other lit structures including shipping movement in the Estuary, and it is not considered that the lighting of the wind farm extension at night will give rise to any significant impacts on landscape, seascape or visual amenity of the study area.

- 14.7.5 Once the Kentish Flats Extension is operational there may be occasional infrequent requirements to repair or replace defective wind turbine components. This will result in vessels and cranes being present at the wind farm for a few days, and could result in landscape, seascape and visual impacts for short periods of time.
- 14.7.6 Whilst the operation of maintenance vessels and associated works involving barges and/or cranes will introduce a new focus of intermittent activity to the Outer Thames Estuary, it will occur in the context of a busy sea channel with continuous movement of vessels of various kinds. Accordingly it is not considered that the operation of maintenance vessels or associated repair works at the Kentish Flats Extension will give rise to any significant impacts on landscape, seascape or visual amenity in the study area.
- 14.7.7 The assessment which follows therefore concentrates on the operational phase of the wind turbines at the Kentish Flats Extension.

14.8 Potential Impacts during Decommissioning

- 14.8.1 The process of decommissioning the Kentish Flats Extension will follow the construction method, involving jack barges and cranes to remove wind turbine components from the site. Removal of foundations will also follow a similar process, leaving no visible structures above mean sea level. Decommissioning would be expected to take approximately 6 months.
- 14.8.2 It is not anticipated that the activities associated with the decommissioning phase will be greater than the construction phase and therefore no significant impacts on the landscape, seascape and visual amenity of the study area are anticipated.

14.9 The Assessment of Potential Residual Landscape and Seascape Impacts Arising from the Operation of the Kentish Flats Extension

- 14.9.1 This section comprises the assessment of the landscape, seascape and visual impacts arising from the Kentish Flats Extension during the operational phase. These impacts have been assessed in the following ways:
- A visibility analysis to provide a general overview of the potential visibility of the wind farm extension from different distances within the study area, and further interpretation based on field survey work of the actual visibility on the ground;
 - Assessment of impacts on landscape and seascape character; and
 - Viewpoint analysis for 5 locations proposed during the scoping stage of the assessment.
- 14.9.2 The potential visibility of the Kentish Flats Extension has been assessed by reference to computer generated Zone of Theoretical Visibility mapping (ZTV)

as well as field survey. The ZTVs do not capture the fine grain of the landscape including local topographic features, buildings or vegetation and therefore represent maximum theoretical visibility, which is greater than will actually be experienced. However, where they show no visibility there will be no wind turbines visible.

The Visibility of the Kentish Flats Wind Farm Extension from the Sea

14.9.3 The ZTVs illustrated in Figures 14.6 and 14.7 indicate that the Kentish Flats Extension will be visible from the sea throughout the study area, with the exception of a restricted area to the south and east of the north Kent cliffs, around Broadstairs and Ramsgate and from a short section of The Swale to the north of Faversham.

The Visibility of the Kentish Flats Wind Farm from the Land

14.9.4 The potential visual impacts of the Kentish Flats Extension are closely related to a range of parameters, the most important of which is distance. It is considered that within 15km, the wind turbines with a blade tip height of up to 145m and hub height of up to 85m will be clearly visible elements in the landscape/seascape. Although they may not necessarily be intrusive, the wind turbines have the potential to be important elements in the landscape/seascape and thereby have potential to cause significant impacts on receptors due to their size and the movement of the blades. Significant impacts on Landscape, Seascape and Visual Resources could potentially also occur beyond 15km from the proposed development as the wind turbines may still be clearly visible. However, at this distance their relative size is much reduced, becoming less distinct and less prominent and appearing as elements in the wider views of the landscape/seascape.

Table 14.6 Summary of visibility based on the ZTV analysis within 15km

Visibility within 15km of the proposed Kentish Flats Extension	
Onshore area	Description of visibility
Isle of Sheppey	The east facing coastline of the Isle of Sheppey has clear visibility of the proposed wind farm extension, as does the coastal settlement at Warden and Leysdown-on-Sea, and the low lying marshes of the Isle of Harty and The Swale. From the eastern edge of the low lying marshes visibility to the wind turbines is likely to be unrestricted.
North Kent Coastline (Whitstable, Herne Bay and Reculver)	The coastal towns of the north Kent coast have unobstructed visibility of the proposed wind farm extension from the coastal edge, as do some elevated areas lying behind the coastal strip. Visibility is intermittent between 2 – 5km inland due to built form, woodland and varying topography.

Table 14.7 Summary of visibility based on the ZTV analysis between 15-35km radius

Onshore area	Description of visibility
East Essex Coast	The flat marshy areas of the coast show extensive visibility, but it is anticipated that the low lying nature of the landform, together with the sea defences along much of the coast will limit views of the proposed offshore wind farm extension due to the oblique nature of views inland, filtered by intervening vegetation cover. The ZTV indicates that the proposed wind farm may be visible from Southend-on-Sea and Shoeburyness. From these coastal towns, the offshore wind turbines will be visible from the coastal edge and sea facing buildings along the sea front, as well as elevated buildings inland. Elsewhere, the built form of the settlements will obscure visibility to the offshore wind farm. The low lying lands to the south of the River Blackwater, and to the south of the River Crouch near Ashington experience little or no visibility.
The Medway Estuary, Isle of Grain and the Hoo Peninsula	A large area of the low lying landscape of the Isle of Grain, the Medway Estuary and the eastern sector of the Hoo Peninsula show extensive visibility. Visibility is limited or none at St Mary's Marshes due to the screening impact of land form.
Isle of Sheppey (West)	The coastline at Sheerness and Minster have clear visibility to the site, as does the town of and the low lying marshes of the Isle of Harty and The Swale up to Elmey Island. The elevated coastal edge screens visibility to the south and west of Minster, across the western section of The Swale.
Swale District, Sittingbourne and Faversham	The ZTV shows extensive visibility over the low lying areas around both Sittingbourne and Faversham, including the M2/A2 corridor and extending south to the edge of the study area and the North Downs AONB.
Isle of Thanet	A large part of the northern side of the Isle of Thanet, including the coastal edge at Margate shows visibility of the wind turbines, but there is no visibility in the towns of Broadstairs, Ramsgate, villages around Pegwell Bay, and Minster and Minster Marshes.
North Downs	The ZTV shows intermittent and localised visibility on the North Downs due to intervening topography with the adjacent downs and intervening bournes giving rise to a striated pattern of visibility. On the ground however, visibility is likely to be restricted by local vegetation cover in this very wooded landscape.
Canterbury and the Stour Valley	The hillier landscape of The Blean to the north of Canterbury provides topographic containment to the City and the low lying Stour Valley. There is no visibility for most of Canterbury, with only an area around the University to the north of the town and a further area to the south east of the town showing visibility of wind turbines.

14.9.5 In addition to the variance from the ZTV arising from local topography, vegetation and buildings, visibility of the Kentish Flats Extension will change with weather and light conditions. In order to assess this, visibility data has been analysed for a five year period. This data are summarised in Table 14.8, below:

Table 14.8 Predicted visibility based on meteorological conditions

Visibility (km)	Percentage of time when wind farm would be visible between distances stated
0 – 5	85.5
5 – 10	65.5
10 – 15	40.6
15 – 20	17.6
20 – 25	5.7
25 – 30	1.9

Met Office Data

- 14.9.6 These data suggests that at a minimum distance of 7.8km offshore, the Kentish Flats Extension may, as a result of weather conditions, be visible 65.5% of the time, at locations where views towards the wind turbines are not obstructed by topography, vegetation or buildings.
- 14.9.7 At distances between 10 and 15km, the wind turbines may be visible 40.6% of the time, and beyond this visibility will diminish between 17.6% of the time at distances between 15 and 20km to 1.9% of the time at distances between 25 and 30km.

Assessment of Impacts on National Landscape Character Areas

- 14.9.8 Impacts on landscape character would be experienced differently in the surrounding National Landscape Character Areas (NLCA) due to the impacts of distance, elevation, combined with the degree to which the new elements would be perceived to have been added to the landscape/seascape. However, these impacts would be limited to those areas within the study area where there will be visibility of the Kentish Flats Extension.
- 14.9.9 Table 14.9 below summarises the findings of the landscape character assessment and the potential impact of the Kentish Flats Extension on each of the NLCA’s within a 35km radius of the site.
- 14.9.10 Significant impacts are identified along the coastal edges covered by the Greater Thames NLCA and the North Kent Plain NLCA. These areas are duplicated by the Regional Seascape Character Areas and therefore a more detailed assessment is presented below using the finer grain Regional Seascape Areas for the equivalent portion of landscape.

Table 14.9 Summary of impacts on the perception of National Landscape Character Areas

National Landscape Character Area	Sensitivity of NLCA to Wind Energy Development	Magnitude of Change	Impact on LCA and significance
Greater Thames Estuary (JCA 85)	High	Locally Moderate within 15km Generally Negligible	Locally Major/Moderate Significant Overall Moderate/Minor Not Significant
North Thames Basin (JCA 111)	Low	Negligible	Minor/None Not Significant
North Kent Plain (JCA 113)	Medium	Locally Significant (North Kent Shoreline) Generally Slight/Negligible	Locally Major/Moderate Significant Overall Minor/None Not Significant
North Downs (JCA 119)	High/Medium	Slight	Moderate and Moderate/Minor Not Significant

Assessment of Impacts on Regional Seascape Character Areas

- 14.9.11 The baseline assessment has defined Regional Seascape Character Areas within the 35km radius study area. Typically however, as discussed above as a general rule of thumb at between 15–30 km the Kentish Flats Extension will only be clearly seen in good visibility, as a minor element in the landscape/seascape.
- 14.9.12 Table 14.10 below summarises the findings of the Regional Seascape Assessment and the potential impact of the Kentish Flats Extension on each character area within a 35km radius of the site.

Table 14.10 Summary of impacts on the perception of Regional Seascape Character Areas

Regional Seascape Character Area (RSCA)	Sensitivity of RSCA to wind energy development	Magnitude of change	Impact on LCA and significance
Sandwich Bay	Medium	Negligible/None	Minor/None Not Significant
North East Kent Cliffs	Medium	Moderate/None	Moderate/None Not Significant
North Kent Shoreline	Medium	Substantial	Major/Moderate Significant
The Swale	Low	Locally Substantial from the coastal edge Generally Slight	Locally Major/Moderate Significant Overall Moderate/Minor/None Not Significant
The Isle of Sheppey	Medium/Low	Locally Substantial from the Isle of Harty Generally Moderate	Locally Major/Moderate Significant from the Isle of Harty Overall Moderate/Minor Not Significant
The Medway Estuary	Low	Negligible	Minor/None Not Significant
River Thames	Medium	Negligible	Minor/None Not Significant
Southend-on-Sea to Shoeburyness	Medium	Slight	Moderate/Minor Not Significant
Shoeburyness to Foulness Point	Medium	Slight	Moderate/Minor Not Significant
River Crouch	Low	Negligible	Minor/None Not Significant
East Essex Marshes	High/Medium	Negligible	Moderate/Minor Not Significant
Tendring Peninsula	Low	Negligible	Minor Not Significant

Assessment of Likely Significant Impacts on Regional Seascape Character Areas

14.9.13 There are 12 Regional Seascape Character Areas within the 35km study area. The following paragraphs provide additional analysis of the sensitivity, magnitude and assessment of impact on the Regional Seascape Character Areas.

Sandwich Bay Regional Seascape Character Area

14.9.14 Sandwich Bay stretches from the Sandwich Bay Estate in the south to the mouth of the River Stour at Pegwell Bay in the north, covering a distance of approximately 10km. The only town within this area is Sandwich, which lies approximately 3km inland, whilst a large area adjacent to the coastline is occupied by golf links. It is considered to have a medium sensitivity to change associated with the proposed offshore wind farm extension.

14.9.15 The ZTV indicates that there is potential for visibility of all the proposed wind turbines from parts of the Seascape Character Area. However, the area is orientated towards the Straights of Dover and away from the proposed development which lies at over 17.5km to the north west. In this regard intervening vegetation cover and existing built form provide strong containment to views to the north west. Where direct views are possible the Kentish Flats Extension will be seen as a minor distant element within the context of the Kentish Flats.

14.9.16 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be Negligible or None from this secluded setting. The impact on the perception of the seascape caused by the Kentish Flats Extension will be minor / none which in the context of this assessment is **not significant**.

North East Kent Cliffs Regional Seascape Character Area

14.9.17 This seascape area stretches from Pegwell Bay by the mouth of the River Stour around the Isle of Thanet to Minnis Bay, covering a distance of approximately 22km, and includes the coastal towns of Ramsgate, Broadstairs and Margate. It is considered to have a medium sensitivity to change associated with the Kentish Flats Extension.

14.9.18 The ZTV indicates that there is effective screening to visibility between Pegwell Bay and Margate. Potential for visibility of all the proposed wind turbines extends from Foreness Point to Westgate on Sea. There will be distant views from the north facing coastal edge towards the Kentish Flats Extension which will be seen within the context of Kentish Flats.

14.9.19 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be locally moderate from the north facing coastal edge. However, generally visibility is limited or None from the RSCA and the magnitude of change is considered to be moderate or none. The impact on the perception of the seascape caused by the Kentish Flats Extension will be moderate or none which in the context of this assessment is **not significant**.

North Kent Shoreline Regional Seascape Character Area

14.9.20 The North Kent Shoreline extends from Minnis Bay westwards to Whitstable Bay. This area of coastline is approximately 22km in length and includes the coastal towns of Herne Bay and Whitstable. It is considered to have a medium sensitivity to change associated with the Kentish Flats Extension.

14.9.21 The ZTV indicates that there is potential for visibility of all the proposed wind turbines from the north facing coastal edge between Whitstable and Birchington. Beyond the immediate coastal edge the well vegetated nature of landscape and existing built form provide containment to the majority of the coastal hinterland. Where direct views are possible from the coast the Kentish Flats Extension will be seen as a prominent new element in the foreground of Kentish Flats.

14.9.22 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be locally Substantial from the north facing coastal edge. However, generally visibility is limited or none from the RSCA and the magnitude of change is considered to be Slight or None. The impact on the perception of the seascape caused by the Kentish Flats Extension will be locally major/moderate which is a significant impact and generally moderate/minor or none across the wider RSCA which in the context of this assessment is **not significant**.

The Swale Regional Seascape Character Area

14.9.23 The Swale separates the Isle of Sheppey from the mainland, stretching from the River Medway eastwards to its entry point to the sea at Whitstable Bay over a distance of approximately 27km. Sittingbourne and Faversham are both located on small tributaries of the Swale and lie 1-2km to the south of The Swale. It is considered to have a low sensitivity to change associated with the Kentish Flats Extension.

14.9.24 The ZTV indicates that there is potential for visibility of all the proposed wind turbines from parts of the Seascape Character Area. However, the area is secluded with internal views orientated away from the proposed development which lies approximately 15km to the north east. Where direct views are possible the Kentish Flats Extension will be seen as a minor distant element within the context of the existing wind farm.

- 14.9.25 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be slight or none from this secluded setting. The impact on the perception of the seascape caused by the Kentish Flats Extension will be moderate/minor or none which in the context of this assessment is **not significant**.

Isle of Sheppey Regional Seascape Character Area

- 14.9.26 The northern coast of the Isle of Sheppey is approximately 20km in length and stretches from the mouth of the Swale to the point where the River Medway enters the sea. Coastal towns along this area of coastline include Sheerness, Minster, Warden and Leysdown on Sea. It is considered to have a medium/low sensitivity to change associated with the Kentish Flats Extension.
- 14.9.27 The ZTV indicates that there is potential for visibility of the proposed wind turbines from the north facing coastal edge and the Isle of Harty. Where direct views are possible from the coast the Kentish Flats Extension will be seen as a prominent new element in the foreground of the existing wind farm.
- 14.9.28 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be locally Substantial from the eastern sector of the seascape area at the Isle of Harty and its higher quality/secluded setting. However, generally visibility is more distant from the RSCA and the landscape quality is lower and therefore the magnitude of change is considered to be Moderate. The impact on the perception of the seascape caused by the Kentish Flats Extension will be locally major/moderate from the Isle of Harty which is a significant impact and generally moderate across the wider RSCA which in the context of this assessment is **not significant**.

The Medway Estuary Regional Seascape Character Area

- 14.9.29 The part of the Medway Estuary that lies within the study area extends along a distance of approximately 8km, from Nor Marsh island to the point where the River Medway enters the sea between the Isle of Grain and the Isle of Sheppey. It is considered to have a low sensitivity to change associated with the Kentish Flats Extension.
- 14.9.30 The ZTV indicates that there is potential for partial visibility of the proposed wind turbines from parts of the Seascape Character Area. The views from the estuary are mostly enclosed by the estuary flats and islands with internal views orientated away from the Kentish Flats Extension which lies approximately 22km to the east. Where direct views are possible the Kentish Flats Extension will be seen as a minor distant element within the context of the existing wind farm.

- 14.9.31 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be negligible from this secluded setting. The impact on the perception of the seascape caused by the Kentish Flats Extension will be minor or none which in the context of this assessment is **not significant**.

River Thames Regional Seascape Character Area

- 14.9.32 The part of the River Thames Seascape Character Area that lies within the study area, extends from the mouth of the River Medway along the northern coast of the Hoo Peninsula to St Mary's Marshes. It is considered to have a medium sensitivity to change associated with the Kentish Flats Extension.
- 14.9.33 Due to the marshy nature of the Isle of Grain there is limited access to the coastal edge, and inland views tend to be short to medium distance, whilst to the west the settled farmland around Allhallows and Lower Stoke offers opportunities for open views to the north. The ZTV indicates that there will be potential for partial visibility to the proposed wind turbines from parts of the coastal marshes and the elevated inland edge. The views from the estuary are orientated to the north away from the Kentish Flats Extension which lies approximately 22km to the east. Where direct views are possible the Kentish Flats Extension will be seen as a minor distant element within the context of the existing wind farm.
- 14.9.34 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be Negligible. The impact on the perception of the seascape caused by the Kentish Flats Extension will be minor or none which in the context of this assessment is **not significant**.

Southend-on-Sea to Shoeburyness Regional Seascape Character Area

- 14.9.35 This area of coastline extends from Canvey Island/Southend-on-Sea to the north of Shoeburyness at Pig's Bay. The area, which is approximately 14km in length, includes the coastal towns of Canvey Island, Southend-on-Sea and Shoeburyness. Kentish Flats is visible as a key element in coastal views. This RSCA is considered to have a medium sensitivity to change associated with the Kentish Flats Extension.
- 14.9.36 The coastline around Canvey Island and Southend-on-Sea provide views towards the Isle of Sheppey and the Isle of Grain to the south, and open views out to sea are available from Pig's Bay and the northerly part of Shoeburyness. The ZTV indicates that there will be potential for visibility to the proposed wind turbines from the coastal edge over circa 17km to the east. Where direct views are possible the Kentish Flats Extension will be seen as an additional element within the context of Kentish Flats.
- 14.9.37 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be Slight. The impact on the

perception of the seascape caused by the Kentish Flats Extension will be Moderate/Minor which in the context of this assessment is **not significant**.

Shoeburyness to Foulness Point (Maplin Sands) Regional Seascape Character Area

- 14.9.38 This area of coastline extends over a distance of approximately 16km from Pig's Bay, Shoeburyness, to the most northerly point of Foulness Island (Foulness Point). Kentish Flats is visible as an element in coastal views. It is considered to have a medium sensitivity to change associated with the Kentish Flats Extension.
- 14.9.39 There are unrestricted views out to sea from the coastal edge, with the Isle of Sheppey visible on the south side of the Thames estuary. The ZTV indicates that there will be potential for visibility to the Kentish Flats Extension from the majority of the RSCA over a minimum distance of circa 17km to the southeast. Where direct views are possible the Kentish Flats Extension will be seen as a additional element within the context of Kentish Flats.
- 14.9.40 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be slight. The impact on the perception of the seascape caused by the Kentish Flats Extension will be moderate/minor which in the context of this assessment is **not significant**.

River Crouch Regional Seascape Character Area

- 14.9.41 The part of the River Crouch estuary which is within the study area, extends from the mouth of the river to include Bridgemarsh Island, covering a distance of about 18km. It is considered to have a low sensitivity to change associated with the Kentish Flats Extension.
- 14.9.42 The views from the estuary are mostly enclosed scenes of the estuary flats and opposite banks, beneath vast skies. Open views out to sea are only possible at the point where the estuary enters the sea and from the top of the sea defences. Where direct views are possible the Kentish Flats Extension will be seen as a minor distant element, over a minimum distance of circa 19km, within the context of Kentish Flats.
- 14.9.43 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be negligible from this secluded setting. The impact on the perception of the seascape caused by the Kentish Flats Extension will be minor or none which in the context of this assessment is **not significant**.

East Essex Marshes Regional Seascape Character Area

- 14.9.44 This seascape character area lies between the River Crouch estuary to the south and the Bradwell Marshes to the north and is approximately 10km in length. The Gunfleet Sands Offshore Wind Farm is visible as an element in views to the east and Kentish Flats is visible only in conditions of good visibility as a minor element in coastal views to the south. It is considered to have a high/medium sensitivity to change associated with the Kentish Flats Extension.
- 14.9.45 From the inland side of the coastal defences, there are limited views of the coastal edge and the sea beyond. The ZTV indicates that there will be potential for visibility to the wind turbines from the majority of the RSCA over a minimum distance of circa 20km to the south. Where direct views are possible the Kentish Flats Extension will be seen as a minor additional element within the context of the existing wind farm.
- 14.9.46 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be Negligible. The impact on the perception of the seascape caused by the Kentish Flats Extension will be moderate/minor which in the context of this assessment is **not significant**.

Tendring Peninsula Regional Seascape Character Area

- 14.9.47 The Tendring Peninsula lies to the east of the estuary of the River Blackwater/Colne, and extends to the east beyond the boundary of the study area. The Gunfleet Sands Offshore Wind Farm is visible in foreground views to the south and Kentish Flats is visible only in conditions of good visibility as a minor element in very distant coastal views to the south. It is considered to have a low sensitivity to change associated with the Kentish Flats Extension.
- 14.9.48 The ZTV indicates that there is potential for visibility to the proposed wind turbines from the majority of the RSCA over a minimum distance of approximately 34km to the south. Where direct views are possible the Kentish Flats Extension will be seen as a very minor additional element within the context of the existing wind farm.
- 14.9.49 The magnitude of change to this RSCA caused by the introduction of the Kentish Flats Extension is considered to be negligible. The impact on the perception of the seascape caused by the Kentish Flats Extension will be minor which in the context of this assessment is **not significant**.

Impacts on Designated Landscapes

- 14.9.50 Where theoretical visibility of the proposed Kentish Flats Wind Farm Extension coincides with areas designated for their landscape value, the impacts have been assessed.

Canterbury World Heritage Site: Canterbury Cathedral, St Augustine's Abbey, and St Martin's Church

- 14.9.51 To the south of the study area within the urban perimeter of Canterbury, 17.3km from the proposed extension, three distinct cultural properties are on the World Heritage List: St Martin's Church; the ruins of St Augustine's Abbey; and Christ Church Cathedral. The location of Canterbury's World Heritage site is shown on Figure 14.2. The World Heritage Site is considered to have a high sensitivity to change, reflecting its international designation.
- 14.9.52 The ZTV in Figure 14.6 shows that there will be no visibility to the core of the World Heritage Site whilst limited areas of theoretical visibility to the east of Canterbury will in reality be screened by existing built form and there will be no visibility from St Martin's Church; the ruins of St Augustine's Abbey; and Christ Church Cathedral.

Kent Downs AONB.

- 14.9.53 The Kent Downs AONB, characterised by a typical chalk landscape, is located across the North Downs, with the boundary at Faversham and Canterbury lying between 19 and 20km of the nearest wind turbines of the proposed extension, as shown on Figure 14.2. It is considered to have a high sensitivity to change, reflecting its national designation.
- 14.9.54 The ZTV in Figure 14.6 shows that there will be large areas of fragmented potential visibility within the Kent Downs AONB, and that visibility is generally from the north facing slopes of hills. However, it is likely that intervening vegetation cover in this densely wooded landscape will limit views to the development. At locations with open views to the north Kent coast the wind turbines will appear as relatively insignificant addition to the existing wind farm within the large scale of the landscape.
- 14.9.55 Given the considerable distance of the AONB from the site, the proposed development will result in a negligible magnitude of change. The significance of the impact is considered to be moderate/minor and **not significant**.

Registered Parks and Gardens

- 14.9.56 Registered Parks and Gardens are those sites listed in the English Heritage Register of Parks and Gardens of special historic interest in England. The inventory identifies historic parks, gardens and designed landscapes

regarded as worthy of protection through National Planning Guidance and the development plan.

- 14.9.57 The locations of the sites are shown in Figure 14.2 and their baseline descriptions are included in Appendix 14.2. Their sensitivity in all cases is considered to be High. Based upon detailed analysis of the ZTV mapping and site survey and field work a summary of the predicted indirect impacts upon the Registered Parks and Gardens is set out in Table 14.11.

Table 14.11 Summary of impacts on Registered Parks and Gardens

Registered Parks and Gardens	Approximate distance to the extension (km)	Magnitude of change	Impact on LCA and significance
Doddington Place	25.8	Negligible	Moderate/Minor Not Significant
Belmont Park	23.7	Negligible	Moderate/Minor Not Significant
Lees Court	21.3	Negligible	Moderate/Minor Not Significant
Mount Ephraim	16.7	Negligible	Moderate/Minor Not Significant
Dane John Gardens	18.5	None	None
Chilham Castle	23.2	None	None
Godmersham Park	24.9	None	None
Albion Place Gardens	23.7	None	None
The Salutation	24.2	Negligible	Moderate/Minor Not Significant
Goodnestone Park	23.2	Negligible	Moderate/Minor Not Significant
Broome Park	27.5	Negligible	Moderate/Minor Not Significant
Olantigh Towers	27.6	None	None

14.10 Assessment of Impacts on Visual Amenity

- 14.10.1 This part of the assessment provides a description of the existing baseline visual context and an assessment of residual visual impacts arising from the Kentish Flats Extension on visual amenity, assessing settlements, transport routes and viewpoints in the study area.

Settlements

- 14.10.2 Figures 14.6 and 14.7 indicate those settlements where the Kentish Flats Extension would theoretically be visible. All ZTV drawings are based on bare ground conditions. For those settlements where the ZTV indicates theoretical visibility, buildings and vegetation are likely to provide a degree of containment between receptors and the Kentish Flats Extension. Buildings

- and vegetation do not register on the ZTV and therefore views to the wind turbines will tend to be more restricted and more intermittent than the ZTV indicates.
- 14.10.3 The Kentish Flats Extension will be visible from the seaward edges and elevated locations at the coastal resorts along the Outer Thames Estuary, including Sheerness, Warden, Leysdown-on-Sea, Whitstable, Herne Bay, Birchington and Margate on the Kent side of the estuary, as well as Southend-on-Sea and Shoeburyness on the Essex side of the Outer Thames.
- 14.10.4 At the towns closest to the site, that is, Leysdown-on-Sea, Whitstable and Herne Bay, there will be a substantial magnitude of change in existing views and the impact on visual amenity will be major which represents a significant impact. However, in considering this assessment it must be noted that the Kentish Flats Extension will be seen in the context of Kentish Flats, an active sea area, with constant movement of vessels and other fixed structures including wind turbines visible on the sea surface around the same proximity as the wind turbines.
- 14.10.5 The Kentish Flats Extension will be visible from parts of the other coastal towns of Sheerness, Warden, Birchington, Margate, Southend-on-Sea and Shoeburyness and these have been assessed to experience only a slight magnitude of change in views and this will not represent a significant impact on visual amenity at these locations.
- 14.10.6 Inland, visibility of the wind turbines at the Kentish Flats Extension is likely to be limited by local landform, vegetation and buildings, so that although the ZTV indicates that the proposed development may be seen from Faversham, there are few locations in the town from where the wind turbines will be seen due to the low lying landform and related sea defences as well as adjacent buildings, such that the magnitude of change on visual amenity from Faversham will generally be negligible and will not represent a significant impact on visual amenity.
- 14.10.7 Sittingbourne is located approximately 23km to the south west of the proposed wind farm. The ZTV indicates that the proposed wind turbines may be visible from Sittingbourne, but actual visibility on the ground is likely to be very limited. Although there may be locations in Sittingbourne where the upper parts of the proposed wind turbines may be visible, they will be at distances of over approximately 23km and will only give rise to a negligible magnitude of change and it is not considered that there will be a significant impact on visual amenity at these locations.
- 14.10.8 Canterbury is located approximately 16km to the south of the Kentish Flats Extension, but as shown on the ZTV, the wind turbines will not be visible from most of the town, with only an area to the north around the University and on the south east edge of the town showing potential visibility. Actual visibility of the wind turbines from these areas is likely to be very limited due to local landform, vegetation and adjacent buildings, and at a distance of approximately 16km to the nearest proposed wind turbines the magnitude of

change will be no more than slight and it is not anticipated that the development will have a significant impact.

Road Users

14.10.9 The ZTV indicates that visual receptors on the M2, A249 and the A299 may have intermittent visibility of the proposed wind turbines, although the actual visibility from these main roads will be quite limited due to local landforms such as road cuttings, vegetation cover and built form which currently offer few views over the sea surface. It is possible that the upper parts of the proposed wind turbines may be visible in the context of the existing wind farm, from sections of these main roads, at distances of over approximately 13km. It is not anticipated that this will represent a significant impact.

National Trails and National Routes in the National Cycle Network

14.10.10 A summary of the predicted visibility from National Trails and National Cycle Routes (NCR) within the 35km study area is set out in Table 14.12 and additional assessment is included below where appropriate. In the context of this assessment, walkers and cyclists are considered to be of high sensitivity to change associated with the Kentish Flats Extension.

Table 14.12 Summary of National Trails and National Cycle Routes

National Trails and National Cycle Routes	Approximate closest distance to the extension (km)	Magnitude of change	Impact on LCA and significance
The Saxon Shore Way	8	Locally Substantial from the North Kent Shoreline RSCA; Generally Slight	Locally Major/Moderate Significant; Overall Moderate/minor Not Significant
The North Downs Way	18	Negligible	Moderate/Minor Not Significant
St Peter's Way	28	Negligible	Moderate/Minor Not Significant
NCR 1	10	Locally Substantial from the North Kent Shoreline RSCA; Generally Slight	Locally Major/Moderate Significant; Overall Moderate/minor Not Significant
NCR 18	18	Negligible	Moderate/Minor Not Significant

14.10.11 The ZTV indicates that there is potential for visibility of all the proposed wind turbines from the north facing coastal edge between Whitstable and Birchington. The Saxon Shore Way and to a lesser degree the route of NCR1 follow the coastline through this section of the study area, and there

will be views from these routes to the Kentish Flats Extension which will be seen as a prominent new element in the foreground of Kentish Flats.

14.10.12 The impact of distance will reduce the influence of the Kentish Flats Extension on the routes beyond this section of the study area and whilst the extension will be visible in many views, it will be seen as an element in wider views to the surrounding landscape.

Sailing and Boating

14.10.13 Sailing and boating on the Outer Thames Estuary is popular and there is a growing demand for more harbour facilities. The main centres for sailing activity are Southend-on-Sea and Burnham-on-Crouch in Essex and Whitstable and Ramsgate in Kent, with the estuaries of the Medway and Swale also providing extensive mooring areas.

14.10.14 The Kentish Flats Extension will add up to 17 wind turbines to Kentish Flats and will also add additional navigational markings and lights which will create further local moderate change in these coastal waters. Those making use of the sea for recreational purposes are considered to be highly sensitive to change of the nature associated with the Kentish Flats Extension, because they are likely to place a high value on the existing character and appearance of the area where they sail. It is therefore considered that the impact of the Kentish Flats Extension will be a moderate magnitude of change with a major/moderate and significant impact on those making use of the inshore coastal waters in close proximity to the proposed wind turbines. However, at distances of over 15 km from the outer edges of the wind turbines this impact will diminish to **not significant**.

14.11 Viewpoint Assessment

14.11.1 A viewpoint assessment has been carried out to identify and evaluate the potential impacts on visual amenity arising from the Kentish Flats Extension at specific representative locations in the study area. The location of viewpoints was initially determined as part of the desk survey, which identified a range of receptors which might be affected by the Kentish Flats Extension. The type of receptors considered included the following:

- Landscape/Seascape Character Areas;
- Designated landscapes;
- Registered Parks and Gardens;
- Settlements;
- Road and rail corridors;
- Long distance footpaths, public footpaths, cycle paths, rights of way;
- Marked popular viewpoints;

- Tourist attractions and visitor facilities such as caravan sites and hotels; and
- Outdoor recreational resources such as golf courses, fishing rivers and nature reserves.

14.11.2 Having identified these receptors in the study area those likely to be affected by the proposed development, as indicated by the ZTV, were used to form an initial selection of representative viewpoints. These viewpoints were identified from the original LSVIA for Kentish Flats and were considered appropriate for the proposed extension providing examples of Land to Sea, Sea to Land, Land to Land and Sea to Sea views. The original 13 viewpoints used in the previous assessment have been included in this new assessment. Following consultation an additional viewpoint was included in the assessment to represent the views which may be experienced from the adjacent shipping lane and by recreational sailing craft in the vicinity. For the purposes of the assessment the Red Sands Fort was deemed to be an appropriate fixed location for this viewpoint. This viewpoint is based on a wireframe due to the extremely restricted nature of access to the structures comprising the Red Sands Fort. The viewpoints are presented in Table 14.5 and their locations illustrated in Figure 14.5.

14.11.3 In order to confirm the appropriateness of the viewpoint selection, field survey verification was carried out for the onshore viewpoints. This involved checking the viewpoint grid references on the ground to ensure that there would be views of the proposed extension from these locations.

14.11.4 The viewpoint assessment has made use of visibility analysis software which traces a line of sight across a digital terrain model to a 3D model of the wind turbines. It provides data on the distance to the proposed wind turbines, bearings to the site, the horizontal angle or portion of the view occupied by the wind turbines and the height of the wind turbines visible, for all of the viewpoints.

14.11.5 The predicted views from each of the 5 viewpoint locations are illustrated using the wireframes or photomontages in Figures 14.9 to 14.13 which are accurate in terms of the positioning, spatial distribution and size of the wind turbines. They are produced using an Ordnance Survey (OS) digital terrain model of the landscape in the view combined with a digital model of the wind turbines. Photomontages are then prepared by combining a wireframe view with the photograph of the existing view and rendering the image. Wireframes are not expected to offer a realistic visualisation of the on-site view that will exist after construction of the Kentish Flats Extension. Each wireframe, with the exception of those used with photomontages, shows the rotor of the wind turbines facing the viewpoint. This has been done to indicate the maximum extent of the development that would be visible and depending on wind direction the visual impact may be less. Photomontages, on the other hand, attempt to simulate realism in the predicted view of the wind turbines, but it should be noted that photography is only a tool to assist in the visualisation process, and cannot be expected to replicate the actual

view or predicted view which would be attained in reality. Each photomontage shows the rotors of the wind turbines facing the direction of the prevailing wind. The photographs used to construct the photomontages have been taken on a digital SLR camera and converted to the equivalent of using a fixed 50mm focal length lens on a traditional SLR, which is endorsed by the Landscape Institute (Guidelines for Landscape and Visual Impact Assessment, 2nd Edition 2002).

- 14.11.6 Each viewpoint shows a 75 degree field of view looking towards the Kentish Flats Extension and therefore represents a ‘snapshot’ of the full extent of views that may be afforded from a given point. The experience of viewing the wind turbines will also be influenced by the full range of views in other directions that may be seen from the viewpoint location. An additional presentation is shown at 39.5 degree field of view to represent a single frame view to the Kentish Flats Extension.
- 14.11.7 The following detailed analysis of the viewpoints includes a description of the existing and predicted view, and analysis of the magnitude of change, and impacts on visual amenity.

Viewpoint 1: Whitstable, Tankerton, Figure 14.9.

Grid Reference	TR 11656, 67241, approximately 10m ASL
Distance and Direction to Kentish Flats Extension	8.74 km to the north
Receptor and Sensitivity	Residents/Walkers – High Road Users – Medium
Magnitude of Change	Moderate
Impact and Significance	Residents/Walkers – Major/Moderate Significant Road Users – Moderate Not Significant

- 14.11.8 This viewpoint is located on the low cliff top at Tankerton beach in Whitstable at approximately 10m above sea level. It represents views obtained from one of the closest coastal settlements to the Kentish Flats Extension, at a distance of 8.74km from the closest wind turbines. The viewpoint is also close to the Saxon Shore Way.
- 14.11.9 Whilst the town of Whitstable is a dense and busy built environment, it is an attractive coastal town and the contrast between the developed coastal edge and the open sea with some movement of shipping and boats, contributes to an area which is considered to be of high sensitivity to change.
- 14.11.10 The existing view is across Tankerton beach, with the seafront promenade extending in either direction along the back of the beach. Views out to sea are open and expansive across the Outer Thames Estuary with the existing 30 wind turbines of Kentish Flats and the Maunsell forts visible in clear

weather conditions. Red Sand Tower is approximately 12 km to the north of the viewpoint location seen within the context of the western edge of the wind farm, and Shivering Sands Tower is approximately 16 km to the north to the west of the wind farm. The wind turbines are visible as prominent elements in the view, with some alignment of wind turbines visible particularly to the centre of the array.

14.11.11 The predicted view shown on the photomontage indicates that the towers and rotors of all of the 17 wind turbines will be visible from this location, to the north-north-east of the viewpoint in front of or to the west (left) of the existing array, with the closest visible wind turbines at 8.74km. At this distance, blade movement is likely to be visible for all of the wind turbines.

14.11.12 The wind turbines extend the width of the horizon over which they will be seen, with an additional 7.3 degree of the field of view added to the west comprising five wind turbines matching the spacing of the existing wind turbines and 3 degrees to the east comprising two further wind turbines again matching the spacing of the wind turbines in the existing array. The wind turbines are seen to align with the existing array to the centre and eastern edge whilst the western edge of the array gradually disperses as a scatter of individual wind turbines. The magnitude of change is moderated by the presence of the existing wind turbines and the proposed wind turbines read as a well-designed addition to the existing development however, the wind turbines are positioned closer to the viewpoint and are therefore more prominent in the view.

Viewpoint 2: Whitstable, Borstal Hill, Figure 14.10

Grid Reference	TR 10485, 65164, approximately 36m ASL
Distance and Direction to Kentish Flats Extension	11.02km to the north
Receptor and Sensitivity	Residents – High Road Users – Medium
Magnitude of Change	Slight
Impact and Significance	Road Users – Moderate/Minor Not Significant Residents – Moderate Not Significant

14.11.13 This viewpoint is located on Borstal Hill, A290, which leads to Whitstable from the A2990 at approximately 36 metres above sea level. It represents views from a distance of approximately 11km from the Kentish Flats Extension, obtained from residential areas of Whitstable at slightly higher elevations inland from the coastal edge.

14.11.14 The existing view is of the main road framed by individual houses and gardens in the foreground, looking north east across the built form on the coastal edge of Whitstable which is seen in the middle ground with the sea visible beyond. The horizon is broken by buildings and trees in the

foreground, with the aggregate processing plant at Whitstable Harbour visible in the centre of the image.

- 14.11.15 The sea surface is visible as an intermittent line rather than a continuous sweep. Due to local vegetation cover Kentish Flats is visible as a partial view seen as separate clusters of wind turbines, and is not seen in its entirety. Two clusters of the existing wind turbines at Kentish Flats are seen in this framed view with the Shivering Sands Maunsell Fort seen beyond.
- 14.11.16 The photomontage shows that the proposed wind turbines will also be visible in a north-easterly direction from this viewpoint. The Kentish Flats Extension layout will add wind turbines in front of the existing wind turbines clusters in the main view. Two further new wind turbines will be seen on the horizon between the trees to the right of the image. As a result a total of eight additional wind turbines will be seen from this viewpoint. Due to local vegetation cover, the full extent of Kentish Flats and the Kentish Flats Extension is not seen.

Viewpoint 3: Herne Bay, Figure 14.11

Grid Reference	TR 17765, 68495, approximately 3m ASL
Distance and Direction to Kentish Flats Extension	8.29 km to the north
Receptor and Sensitivity	Residents/Walkers/Visitors – High
Magnitude of Change	Moderate
Impact and Significance	Residents/Walkers/Visitors – Major/Moderate Significant

- 14.11.17 This viewpoint is located at Herne Bay on the promenade at the east end of the breakwater, at approximately 3m above sea level. It represents views obtained by residents of Herne Bay with open sea views, as well as visitors to the coast at this location, and those walking on the Saxon Shore Way. The viewpoint is located approximately 8.7km from Kentish Flats and 8.3km from the nearest wind turbines of the Kentish Flats Extension.
- 14.11.18 The existing view is from the promenade across the shingle beach to the open sea, with the town of Herne Bay extending in either direction. The breakwater wall is visible to the left hand side, with the end of the former pier visible in the middle distance. The towers and rotors of the 30 wind turbines comprising Kentish Flats are visible as a prominent element on the horizon due north from this location. Kentish Flats is seen as a relatively loose array with some clustering and alignment of wind turbines seen towards the centre of the wind farm. In clear weather the Maunsell forts are visible with Red Sand Fort at a distance of approximately 15km to the north-west, and Shivering Sand Tower approximately 15km to the north-north-west of the viewpoint. It is an expansive view of sea and sky with the backcloth of the busy sea front of Herne Bay behind the viewpoint location.

14.11.19 The predicted view shown on the photomontage indicates that the towers and rotors of all of the 17 proposed wind turbines will be visible from this location, to the north of the viewpoint in front of or to the west (left) of the Kentish Flats, with the closest visible wind turbines at approximately 8.3km. At this distance, blade movement is likely to be visible for all of the wind turbines.

14.11.20 The proposed wind turbines will extend the width of the horizon over which wind turbines will be seen by an additional 6.4 degrees of the field of view to the west and 3 degrees to the east. Twelve wind turbines aligned as two adjacent rows of six wind turbines form a ‘bookend’ to the west of the array, and five well spaced wind turbines stand in front of the existing array. The magnitude of change is moderated by the presence of the existing wind turbines however, the wind turbines are positioned closer to the viewpoint and are therefore more prominent in the view and with a tip height of 145m are noticeably larger than the existing wind turbines.

Viewpoint 4: Reculver, Figure 14.12

Grid Reference	TR 22574, 69317, approximately 3m ASL
Distance and Direction to Kentish Flats Extension	8.75km to the north west
Receptor and Sensitivity	Residents/Walkers/Visitors – High
Magnitude of Change	Moderate
Impact and Significance	Residents/Walkers/Visitors – Major/Moderate Significant

14.11.21 This viewpoint is located at Reculver and represents views obtained from the historic settlement of Reculver, which is on the Saxon Shore Way, at a distance of approximately 9.5 km from the nearest proposed wind turbines at the Kentish Flats Extension.

14.11.22 The existing view is taken from the promenade which forms part of the Saxon Shore Way, leading westwards to Reculver Country Park. To the right hand side, beyond the view shown, the two prominent towers of St Mary’s Church are visible. The promenade is reinforced with rock armour as sea defence at the back of the narrow shingle beach. The towers and rotors of Kentish Flats are seen as six rows of wind turbines, with the wind turbines of the central rows being closely spaced and those at the outer edges of the array, being more spaced out.

14.11.23 The towers and rotors of the Kentish Flats Extension wind turbines will be visible from this viewpoint, with the closest wind turbines seen over a distance of 8.75km. The wind turbines will be seen as 13 wind turbines to the left of the main array arranged as two overlapping parallel rows, with four further wind turbines position in the foreground of the existing array, added to the ends of the existing rows. The wind turbines will be closer to the shore

and therefore will be seen as more prominent elements in the view. Blade movement will be visible for most of the wind turbines.

Viewpoint 5: Red Sands Fort, Figure 14.13

Grid Reference	TR 07886,79616, approximately 20m ASL (Platform Height)
Distance and Direction to Kentish Flats Extension	3.20km to the north
Receptor and Sensitivity	Recreational Sailors – High Commercial Shipping – Low
Magnitude of Change	Substantial
Impact and Significance	Recreational Sailors – Major Significant Commercial Shipping – Moderate/Minor Not Significant

14.11.24 This viewpoint is located at Red Sand Fort which was erected as a defence for shipping lanes during World War II. The fort provides an appropriate position to illustrate the potential impacts of the Kentish Flats Extension on the experience of commercial shipping and recreational sailors using the Outer Thames Estuary.

14.11.25 The existing wireframe illustrates the view looking east towards Kentish Flats and the north Kent coast beyond to the right of the view. The towers and rotors of the Kentish Flats are seen as overlapping groups of wind turbines, with the wind turbines towards the centre of the cluster closely spaced, and those at the outer edges of the array with more open spacing.

14.11.26 The proposed extension will add two further parallel rows of wind turbines to the western edge of the cluster, closer to the Red Sands Fort and within 3.2km of the viewpoint. The wind turbines added to the southern edge of the array are seen within the central cluster of wind turbines from this position. The extension ties in well with the overall formation of the array. The prominence of the development is increased from this viewpoint with an increase in the angle of the horizon occupied by wind turbines.

Viewpoint 6: Chapel of St Peter’s on the Wall, Figure 14.14

Grid Reference	TM 03187, 08271, approximately 5m ASL
Distance and Direction to Kentish Flats Extension	30.4km to the south
Receptor and Sensitivity	Residents/Visitors and Walkers – High
Magnitude of Change	Negligible
Impact and Significance	Residents/Visitors and Walkers – – Moderate/Minor Not Significant

14.11.27 This viewpoint is located at the end of the track providing access to St Peter’s Chapel, on the edge of the Dengie Flat National Nature Reserve. It is illustrative of views of the Kentish Flats Extension at a distance of approximately 30.4km from the north Essex coastline, and of a location just outside the study area from where the proposed wind farm at Gunfleet Sands may also be visible. It represents views obtained by bird watchers, naturalists or those simply enjoying a walk in the Reserve.

14.11.28 The existing view is across the flat saltmarshes and associated estuarine channels. The coastal edge is just visible to the east north east from this location at approximately 0.5 km distance. The viewpoint is adjacent to the existing bird observation tower, a group of deciduous trees visible in the middle ground shelters the buildings of the Bradwell Bird Observatory. The existing wireframe illustrates the view looking south towards Kentish Flats. The upper towers and rotors of the Kentish Flats are seen as minor elements on the distant horizon.

14.11.29 The proposed wind farm extension will be seen as very minor elements, visible during very clear weather conditions. The proposed extension will add eight wind turbines to the eastern edge of the cluster, with a further nine turbines scattered through the existing array. The proposed extension will increase in the angle of the horizon occupied by wind turbines.

Viewpoint 7: Pier at Southend-on-Sea, Figure 14.15

Grid Reference	TQ 88975, 83090, approximately 3m ASL
Distance and Direction to Kentish Flats Extension	22.4km to the east
Receptor and Sensitivity	Residents/Visitors – High
Magnitude of Change	Negligible
Impact and Significance	Residents/Visitors – Moderate/Minor Not Significant

- 14.11.30 This viewpoint is located on Southend Pier at approximately 3m above sea level. It is illustrative of views from Southend-on-Sea obtained by residents at Southend-on-Sea with open sea views and visitors at a distance of approximately 22.4km from the nearest turbine of the Kentish Flats Extension.
- 14.11.31 The existing view is of the end of the pier with associated built structures and the Life Boat Station visible to the right of image, and the town of Southend-on-Sea adjacent to Southend Flat visible to the left hand side, approximately 1.5 km distant from this viewpoint. Apart from the foreground structures and the pier, the whole view is occupied by sea and sky, with many vessels seen in the main shipping channel and sailing boats off the coast of Shoeburyness. Kentish Flats is seen in the centre of the image, its exact position is seen clearly in the wireframe view on Figure 14.15b.
- 14.11.32 The predicted view from the pier is shown by the wireframe and indicates that all 17 turbines of the Kentish Flats Extension will be visible. The Kentish Flats Extension will add six wind turbines to the southern edge of the cluster, with a further 11 turbines seen in overlap with the existing array. The proposed extension will increase in the angle of the horizon occupied by wind turbines.

Viewpoint 8: Seafront at Warden, Figure 14.16

Grid Reference	TR 02382, 71806, approximately 3m ASL
Distance and Direction to Kentish Flats Extension	10.9km to the north east
Receptor and Sensitivity	Residents/Visitors – High
Magnitude of Change	Moderate
Impact and Significance	Residents/Visitors – Major/Moderate Significant

- 14.11.33 This viewpoint is located at Warden on the Isle of Sheppey at approximately 3m above sea level. It represents views to the Kentish Flats Extension at a distance of approximately 10.9km for local residents with open sea views on the Isle of Sheppey, as well as visitors to this part of the coast.
- 14.11.34 The existing view is taken from the concrete sea defences and looks straight out to sea with Kentish Flats clearly seen over a distance of approximately 12.1km. A wooden groyne is visible in the foreground.
- 14.11.35 The predicted view from the seafront is shown in photomontage in Figure 14.16e and indicates that all 17 turbines of the Kentish Flats Extension will be visible. The proposed extension will add six wind turbines to the southern edge of the cluster, with a further 11 turbines seen in overlap with the existing array. The proposed extension will increase in the angle of the horizon occupied by wind turbines from 28 degrees to 36 degrees of the horizon.

Viewpoint 9: Margate Pier, Figure 14.17

Grid Reference	TR 35123, 71186, approximately 2m ASL
Distance and Direction to Kentish Flats Extension	17.9km to the west
Receptor and Sensitivity	Residents/Visitors – High
Magnitude of Change	Negligible
Impact and Significance	Residents/Visitors – Moderate/Minor Not Significant

14.11.36 This viewpoint is approximately 2m above sea level. It is illustrative of views obtained by residents of Margate with open sea views, and visitors to the sea front at this location, at a distance of approximately 17.9km from the nearest turbine at the Kentish Flats Extension.

14.11.37 The existing view is of the harbour wall in the foreground enclosing the shallow harbour to the left of the view, adjacent to the lighthouse at the end of the pier. There is an open vista across the sea beyond. The town of Margate is visible to the left side of the view.

14.11.38 The predicted view from the pier is shown in wireframe in Figure 14.17c and indicates that all 17 turbines of the Kentish Flats Extension will be visible. The proposed extension will add six wind turbines to the western edge of the cluster, with a further 11 turbines seen in overlap with the existing array. The proposed extension will increase in the angle of the horizon occupied by wind turbines. The wind turbines in the Kentish Flats Extension will be seen over distances of between 17.9km and 25km.

Viewpoint 10: North Downs Way, B2046 Near Aylesham, Figure 14.18

Grid Reference	TR 22220, 50907, approximately 108m ASL
Distance and Direction to Kentish Flats Extension	26.4km to the north
Receptor and Sensitivity	Walkers – High
Magnitude of Change	Negligible
Impact and Significance	Walkers – Moderate/Minor Not Significant

14.11.39 This viewpoint is location on the North Downs Way in the Kent Downs AONB, approximately 7km south east of the centre of Canterbury and at approximately 108m above sea level. It represents views obtained by those walking on the National Trail in the AONB at a distance of approximately 26.4km from the nearest turbine of the Kentish Flats Extension, as well as residential settlement in the vicinity with open views northwards to the coast.

- 14.11.40 The existing view is across a large rectangular field in gently rolling farmland of north Kent, with the North Downs Way leading north westwards. There are groups of deciduous woodland in the middle and far distance looking beyond towards the north Kent coastline.
- 14.11.41 The predicted view from the pier is shown in wireframe in Figure 14.18c and indicates that all 17 turbines of the Kentish Flats Extension will be visible in clear weather conditions.
- 14.11.42 The proposed extension will add nine wind turbines to the western edge of the cluster, with a further eight turbines seen in overlap with the existing array. The Kentish Flats Extension will increase in the angle of the horizon occupied by wind turbines. The turbines in the Kentish Flats Extension will be seen over distances of between 26.4km and 29.7km.

Viewpoint 11: Seafront at Shoeburyness, Figure 14.19

Grid Reference	TQ94199, 84852, approximately 5m ASL
Distance and Direction to Kentish Flats Extension	17.8km to the east
Receptor and Sensitivity	Residents/Visitors – High
Magnitude of Change	Slight
Impact and Significance	Residents/Visitors – Moderate Not Significant

- 14.11.43 This viewpoint is located at the former garrison site in Shoeburyness on the north side of the Thames Estuary, and at 5m ASL. It represents views obtained by residents of Shoeburyness at a distance of approximately 17.8km from the nearest turbine of the Kentish Flats Extension.
- 14.11.44 The existing view shows the promenade and associated public gardens at the back of the beach with its extensive sea defences, enclosed area for swimming and series of wooden groynes. The south side of the Thames Estuary on the Isle of Sheppey is visible in the distance beyond the vessels to the right of the image.
- 14.11.45 The predicted view from the seafront is shown in wireframe in Figure 14.19c and indicates that all 17 turbines of the Kentish Flats Extension will be visible. The proposed extension will add eight wind turbines to the western edge of the cluster, with a further nine turbines seen in overlap with the western edge of the existing array. The proposed extension will increase in the angle of the horizon occupied by wind turbines. The wind turbines in the Kentish Flats Extension will be seen over distances of between 17.9km and 25.1km.

Viewpoint 12: Manston Court Road, Nr Westwood, Thanet, Figure 14.20

Grid Reference	TR 35800, 67732, approximately 49m ASL
Distance and Direction to Kentish Flats Extension	20.1km to the west
Receptor and Sensitivity	Residents – High Road users – Medium
Magnitude of Change	Negligible
Impact and Significance	Residents – Moderate/Minor Not Significant Road users – Minor Not Significant

14.11.46 This viewpoint is located on Manston Court Road close to the A256 and is illustrative of views from the slightly higher ground of the Isle of Thanet in east Kent at a distance of approximately 20.1km from the nearest turbine of the Kentish Flats Extension.

14.11.47 The existing view shows the rolling, rich agricultural land of the Isle of Thanet with scattered farm buildings and unenclosed fields with vegetation cover softening the edge of neighbouring settlements and the edge of the Margate conurbation beyond. The sea is visible at a distance of approximately 5km to the north, on the right side of the view.

14.11.48 The predicted view is shown in wireframe in Figure 14.20c and indicates that all 17 turbines of the Kentish Flats Extension will be theoretically visible. Visibility will only be possible during clear weather conditions with the extended wind farm seen as distant minor element in views. The Kentish Flats Extension will add eight wind turbines to the western edge of the cluster, with a further nine turbines seen in overlap with the western edge of the existing array. The Kentish Flats Extension will increase in the angle of the horizon occupied by wind turbines. The turbines in the proposed extension will be seen over distances of between 19.9km and 27.1km.

Viewpoint 13: Ham Marshes, Faversham, Figure 14.21

Grid Reference	TR 01802, 62896, approximately 2m ASL
Distance and Direction to Kentish Flats Extension	17.5km to the north
Receptor and Sensitivity	Residents – High Road users – Medium
Magnitude of Change	Slight
Impact and Significance	Residents – Moderate Not Significant Road users – Moderate/Minor Not Significant

- 14.11.49 This viewpoint is located on the northern outskirts of Faversham at 2m above sea level, adjacent to Ham Farm. It is illustrative of views obtained from the northern parts of this settlement with open views in the direction of the Outer Thames Estuary, at approximately 17.3km from the nearest proposed turbine.
- 14.11.50 The existing view is across the open farmland created on reclaimed drained land of the surrounding marshes. There is an isolated farmstead visible to the right of the view, and single trees apparent. A line of pylons can be seen in the middle distance and the edge of Whitstable across higher ground to the right of the image. The sea surface is not visible, with the embankments beside the River Swale containing views beyond this polder landscape.
- 14.11.51 The predicted view is shown in wireframe in Figure 14.22c and indicates that all 17 turbines of the Kentish Flats Extension will be theoretically visible. The proposed extension will add three wind turbines to the western edge of the cluster, with a further two turbines to the east of the cluster with the intervening turbines evenly spread out between and seen in overlap with the existing of the array. The proposed extension will increase the angle of the horizon occupied by wind turbines. The wind turbines in the Kentish Flats Extension will be seen over distances of between 17.5km and 21.5km.

Viewpoint 14: Seafont, Sheerness, Figure 14.22

Grid Reference	TQ 92102, 75072, approximately 3m ASL
Distance and Direction to Kentish Flats Extension	18.9km to the north
Receptor and Sensitivity	Residents/Visitors – High
Magnitude of Change	Slight
Impact and Significance	Residents/Visitors – Moderate Not Significant

- 14.11.52 This viewpoint is located on the promenade at the back of the sea defences at Sheerness at 3.0m above sea level. This location represents views obtained from the coastal edge of Sheerness at a distance of approximately 18.9km from the Kentish Flats Extension.
- 14.11.53 The existing view is of the promenade and stepped sea wall at the back of a shingle beach, protected by a series of wooden groynes. Retail and residential development is visible to the right with a church visible in the middle distance and sea front housing beyond.
- 14.11.54 The predicted view is shown in wireframe in Figure 14.22c and indicates that all 17 turbines of the Kentish Flats Extension will be theoretically visible. The wind farm extension layout will add to the existing array which consists of 5 rows of turbines, with two turbines added to nearest end of these rows and a further new row added to the south of the existing rows. The left hand rows

appear with closely aligned turbines and the right hand row appearing to be the most spaced out.

14.11.55 The proposed extension will increase in the angle of the horizon occupied by wind turbines. The turbines in the Kentish Flats Extension will be seen over distances of between 19.2km and 26km.

Table 14.13 Summary of impacts upon viewpoints

Viewpoint		Sensitivity	Magnitude of change	Impact	Significance
1	Whitstable Tankerton / Saxon Shore Way	High (Residents/Walkers) Medium (Road Users)	Moderate	Major/Moderate (Residents/Walkers) Moderate (Road Users)	Significant For Residents and Walkers Not Significant for Road Users
2	Whitstable, Borstal Hill	High (Local Residents) Medium (Road Users)	Slight	Moderate (Local Residents) Moderate/Minor (Road Users)	Not Significant
3	Herne Bay Museum / Saxon Shore Way	High	Moderate	Major/Moderate	Significant
4	Reculver / Saxon Shore Way	High	Moderate	Major/Moderate	Significant
5	Red Sands Fort	High (Recreational sailors) Low (Commercial Shipping)	Substantial	Major (Recreational sailors) Moderate/Minor (Commercial Shipping)	Significant (Recreational sailors) Not Significant (Commercial Shipping)
6	St Peter's Chapel (Also on St Peter's Way)	High (Local Residents/Visitors/Walkers)	Negligible	Moderate/Minor (Residents/Visitors/Walkers)	Not Significant
7	Pier at Southend-on-Sea	High (Local Residents/Visitors)	Negligible	Moderate/Minor (Residents/Visitors)	Not Significant
8	Warden	High (Local Residents/Visitors)	Moderate	Major/Moderate (Residents/Visitors)	Significant
9	Margate Pier	High (Local Residents/Visitors)	Negligible	Moderate/Minor (Residents/Visitors)	Not Significant
10	North Downs Way, crossing of B2046 near Aylesham.	High (Walkers)	Negligible	Moderate/Minor (Walkers)	Not Significant

Viewpoint		Sensitivity	Magnitude of change	Impact	Significance
11	Seafront Shoeburyness, near Gunners Road	High (Local Residents/Visitors)	Slight	Moderate (Residents/Visitors)	Not Significant
12	Thanet, A256 near Westwood	High (Local Residents) Medium (Road Users)	Negligible	Moderate/Minor (Local Residents) Minor (Road Users)	Not Significant
13	Footpath at Ham Marshes, Faversham	High (Local Residents) Medium (Road Users)	Slight	Moderate (Local Residents) Moderate/Minor (Road Users)	Not Significant
14	Seafront Sheerness	High (Local Residents/Visitors)	Slight	Moderate (Residents/Visitors)	Not Significant

14.12 Assessment of Cumulative Impacts on the Perception of the Landscape/Seascape Resource

14.12.1 The potential cumulative landscape and visual impacts of the Kentish Flats Extension have been considered in relation to other operational, consented and proposed wind farm projects within a 35km radius and a detailed assessment is included as Appendix 14.4. The Assessment has been undertaken with reference to Figure 14.23 Cumulative Wind Farm Site Location Plan, Figures 14.24 to 14.32 Cumulative Wind Farm ZTV Plans, and Figures 14.33 to 14.35 illustrating Cumulative Wireframes from three representative viewpoints.

14.12.2 During the LSVIA scoping exercise, it was stated that the Cumulative Landscape, Seascape and Visual Impact Assessment (CLSVIA) would include all sites within the 35km radius study area that are in the public domain as at July 2011 including:

- Any constructed wind farm;
- Any consented wind farm proposal; and
- Any wind farm proposal at planning application stage.

14.12.3 The Kentish Flat Wind Farm Extension forms the focus of the study and the CLSVIA provides a tool to consider ways in which the wind turbines will have additional impacts when considered together with other operational, consented, or proposed wind farms at planning stage.

14.12.4 Relevant details of these wind farms to be included in the CLSVIA are summarised below in Table 14.1 and their locations are shown on Figure 14.24.

Table 14.14 Wind Farms identified for cumulative assessment

Site	Approximate distance from extension (km)	Developer	Number of turbines	Turbine tip height (m)
Operational wind farm				
Kentish Flats	0.7k	Vattenfall	30	115
Gunfleet Sands I, II, and III	29	Dong	48	129
Thanet	29	Vattenfall	100	120
London Array	30.6	Dong/ Eon/ Masdar	175	147
Port of Sheerness	26.3	Peel Energy	4	125
Bradwell on Sea	28.5	RWE Npower	10	121
Middlewick	23.3	Ridgewind	9	125
Planning stage wind farm				
HMP Stanford Hill Turbines	15.8	Partnerships for Renewables	2	121

14.12.5 The conclusions of the cumulative assessment are set out in the Summary and Conclusions below.

14.13 Summary of Impacts on Landscape, Seascape and Visual Amenity

- 14.13.1 The Landscape, Seascape and Visual Assessment has been undertaken for the Kentish Flats Extension in order to identify potential impacts on landscape, seascape and visual receptors. These receptors have been identified through a combination of consultation with the IPC and statutory consultees, together with desk study and field work.
- 14.13.2 This assessment reviewed potential impacts on landscape and seascape character and impacts on visual amenity within a 35km radius of the Kentish Flats Extension. Cumulative impacts of the Kentish Flats Extension were also considered following the identification of other wind farm sites within the 35km study area.

Assessment of Indirect Impacts on the Landscape and Seascape Resource

- 14.13.3 The assessment identifies that locally there will be significant impacts on parts of the North Kent Shoreline and The Isle of Sheppey Regional Seascape Character Areas and locally in corresponding parts of the Greater Thames Estuary and North Kent Plain National Landscape Character Areas.
- 14.13.4 The significant impacts at these locations will arise from the introduction of a new group of 17 wind turbines to the Kentish Flats within the context of the Outer Thames Estuary at distances of between 7.9km and 11.25km from the coastal edge. Whilst it is considered that there will be a significant impact on the North Kent Shoreline between Whitstable and Birchington and also the Isle of Sheppey at the Isle of Harty, the wind turbines will be located adjacent to one of the busiest shipping channels in the UK. They will therefore be seen in the context of other existing structures, such as the Maunsell forts and navigational structures, as well as the constantly changing scene created by the movement of a wide range of sea going vessels on the Outer Thames Estuary. Where direct views are possible from the coast the Kentish Flats Extension will be seen as a prominent new element in the foreground of Kentish Flats. Beyond the immediate coastal edge the vegetated nature of landscape, local terrain and existing built form provide containment to the coastal hinterland, limiting the extent of the typically oblique views.
- 14.13.5 From the wider shoreline of the study area, where there is a high degree of intervisibility, the Kentish Flats Extension will be visible as an additional new feature in the seascape however the development will be viewed within a wider seascape setting over distance and will be seen simultaneously with other developments. In this regard potential impacts on seascape character are diminished and no significant impacts are recorded on the perception of seascape character beyond the North Kent Shoreline and Isle of Sheppey Regional Seascape Character Areas. There will not be significant seascape

impacts at any of the 10 other Regional Seascape Character Areas identified in the study area.

- 14.13.6 Views across the surrounding lowland hinterland landscape towards the Kentish Flats Extension are increasingly restricted by the oblique nature of views, with visibility restricted by the intervening landform, built form and vegetation cover. Locally there are opportunities for visibility of the wind turbines from open estuaries, creeks, low lying marshland and more distant hills and ridges. However, the development will be viewed as a minor element within a wider landscape setting. No significant impacts are recorded on the perception of landscape character beyond the identified local sections of the Greater Thames Estuary and North Kent Plain National Landscape Character Areas.

Assessment of Impacts on Landscape Designations

- 14.13.7 Potential impacts on the quality and setting of designated landscapes within the study area were assessed, in particular the impacts on the North Downs AONB (19km to the south). Impacts on 12 Parks and Gardens on English Heritage's Register of Parks and Gardens were assessed within the study area. It was concluded that there will be no significant impacts on the AONB. Views from landscapes on the Register of Parks and Gardens are generally limited, distant or do not occur at all, and as such no significant impacts were found on their setting or quality.

Assessment of Impacts on Visual Amenity

- 14.13.8 The study included an assessment of the impacts of the Kentish Flats Extension upon settlements, transport corridors, National Trails, National Cycle Routes and viewpoints representative of a range of receptors within the study area.

Residential Settlement

- 14.13.9 The Kentish Flats Extension will be visible from the seaward edges and elevated locations at the coastal resorts along the Outer Thames Estuary, including Sheerness, Warden, Leysdown-on-Sea, Whitstable, Herne Bay, Birchington and Margate on the Kent side of the estuary, as well as Southend-on-Sea and Shoeburyness on the Essex side of the Outer Thames.
- 14.13.10 At the towns closest to the site, that is Leysdown-on-Sea, Whitstable and Herne Bay, the impact on visual amenity will be major and represents a significant impact. However, in considering this assessment it must be noted that the Kentish Flats Extension will be seen in the context of the existing wind farm, an active sea area, with constant movement of vessels and other fixed structures visible on the sea surface around the same proximity as the wind turbines.

- 14.13.11 The Kentish Flats Extension will be visible from parts of the other coastal towns noted above but the assessment has concluded that this will not represent a significant impact on visual amenity at these locations.
- 14.13.12 Inland, visibility of the wind turbines at the Kentish Flats Extension is likely to be limited by local landform, vegetation and buildings, so that although the ZTV indicates that the proposed development may be seen from Faversham, over 18km, there are few locations in the town from where the wind turbines will be seen due to the low lying landform and related sea defences as well as adjacent buildings and the impact of distance, so that impacts on visual amenity from Faversham will generally be insignificant.
- 14.13.13 Sittingbourne is located approximately 23km to the south west of the Kentish Flats Extension. The ZTV indicates that the Kentish Flats Extension may be visible from Sittingbourne, but actual visibility on the ground is likely to be very limited. Although there may be locations in Sittingbourne where the upper parts of the wind turbines may be visible, they will be at distances of over approximately 24km and it is not considered that there will be a significant impact on visual amenity at these locations.
- 14.13.14 Canterbury is located approximately 16km to the south of the Kentish Flats Extension, but as shown on the ZTV, the wind turbines will not be visible from most of the town, with only an area to the north around the University and on the south east edge of the town showing potential visibility. Actual visibility of the wind turbines from these areas is likely to be very limited due to local landform, vegetation and adjacent buildings, and at a distance of approximately 16km to the nearest proposed wind turbines, it is not anticipated that the development will have a significant impact.

Road Users

- 14.13.15 The ZTV indicates that visual receptors along the M2, A249 and the A299 may have intermittent visibility of the proposed wind turbines, although the actual visibility from these main roads will be quite limited due to local landforms such as road cuttings and vegetation cover which currently offer few views over the sea surface. It is possible that the upper parts of the proposed wind turbines may be visible in the context of the existing wind farm, from sections of these main roads, at distances of over approximately 13km. It is not anticipated that this will represent a significant impact.

Sailing and Boating

- 14.13.16 Sailing and boating on the Outer Thames Estuary is popular with a growing demand for more harbour facilities. The Kentish Flats Extension will add a further 17 wind turbines to Kentish Flats and will add additional navigational markings and lights which will create further local moderate change in these coastal waters. Those making use of the sea for recreational purposes are considered to be highly sensitive to change. It is considered that the impact

of the Kentish Flats Extension will have a locally moderate and not significant impact on those making use of the inshore coastal waters within 2km of the proposed wind turbines

National Trails and National Cycle Routes

14.13.17 Impacts on the visual amenity from long-distance footpaths/cycleways within the study area were also assessed including NCR 1, NCR 18, The Saxon Shore Way, The North Downs Way and St Peter’s Way. It was concluded that there would be locally significant impacts along sections of the Saxon Shore Way and NCR1. The impacts are limited to the stretches of the routes in the vicinity of the Kentish Flats Extension as they pass through the North Kent Shoreline Regional Seascape Character Area.

Viewpoint Assessment

14.13.18 The nature of the visibility of the Kentish Flats Extension was also assessed from 14 viewpoints which were agreed with the relevant consultees as being the viewpoints most relevant to illustrate the impacts of the Kentish Flats Extension. The assessment concludes that there would be significant impacts upon the visual amenity afforded from the following viewpoints:

- Viewpoint 1: Whitstable, Tankerton;
- Viewpoint 2: Whitstable, Borstal Hill;
- Viewpoint 3: Herne Bay;
- Viewpoint 4: Reculver;
- Viewpoint 5: Red Sands Fort; and
- Viewpoint 8: Warden.

Assessment of Cumulative Landscape and Visual Impacts

14.13.19 When considering the cumulative impacts of the Kentish Flats Extension within the study area, the baseline built / consented schemes, and schemes currently in planning have been considered and were assessed together with the Kentish Flats Extension.

14.13.20 The cumulative assessment concluded that the addition of the proposed wind turbines to the baseline will add only slightly to the extent of possible areas from which a wind farm may be seen.

14.13.21 Significantly, the cumulative assessment concludes that the addition of the Kentish Flats Extension would not give rise to cumulative impacts with the existing baseline of built/consented sites or Planning Stage sites on National Landscape Character Areas and Regional Seascape Character Areas.

- 14.13.22 No significant cumulative impacts are predicted upon any National Parks, designated landscapes or Registered Parks and Gardens.
- 14.13.23 Significant cumulative impacts are predicted to arise on the settlements of Whitstable, Herne Bay and Leysdown-on-Sea from the interaction of the Kentish Flats Extension with the existing wind farm. These impacts are limited to those sectors of the settlement which have direct visibility to the Kentish Flats Extension.
- 14.13.24 There will be locally significant cumulative impacts on a short stretch of the Saxon Shore Way and NCR1 as they pass through the North Kent Shoreline Regional Seascape Area, when viewed in combination with the Kentish Flats Extension.
- 14.13.25 As part of the cumulative assessment, three viewpoints were selected as being representative of vantage points within the study area. From the assessment, it was identified there will be significant impacts on the experience of receptors from Whitstable when the Kentish Flats Extension is viewed locally in combination with Kentish Flats.
- 14.13.26 The cumulative assessment concludes that the addition of the proposed Kentish Flats Extension to the baseline creates local cumulative impacts. Whilst the Kentish Flats Extension will be seen in combination with other offshore wind farms in the Outer Thames Estuary, significant impacts do not arise due to the distances over which these wind farms are seen. No significant impacts are predicted to arise from the interaction of the Kentish Flats Extension with baseline onshore wind farms. No significant cumulative impacts are predicted to arise from the addition of the Kentish Flats Extension to wind farm sites currently at the planning stage.

14.14 References

Canterbury County Council (2006). The Canterbury District Local Plan Available from URL http://www.cartogold.co.uk/canterbury/text/00_cont.htm Accessed on 18/02/2011.

Countryside Agency and Scottish Natural Heritage (2002). Landscape Character Assessment: Guidance for England and Scotland.

Countryside Council for Wales, Brady Shipman Martin and University College of Dublin (2001). Guide to Best Practice in Seascape Assessment.

Department of Energy and Climate Change (DECC) (2011a). Overarching National Policy Statement for Energy (EN-1, July 2011).

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

English Heritage (2008). England's Historic Seascapes, Historic Seascape Characterisation (HSC) National Historic Seascape Method Statement,.

Enviros (2005). Guidance on the Assessment of the Impact of Offshore Wind Farms: Seascape and Visual Impact Report, report for the DTI.

English Heritage (2009). The European Landscape Convention, The English Heritage Action Plan for Implementation.

Horner and MacLennan and Envision (2006). Visual Representation of Wind Farms – Good Practice Guidance for Scottish Natural Heritage, The Scottish Renewable Forum and the Scottish Society of Directors of Planning.

Infrastructure Planning Commission (IPC) (2010). Kentish Flats Scoping Opinion Available from URL: http://infrastructure.independent.gov.uk/wp-content/uploads/2010/12/101207_EN0100036_Kentish_Flats_scoping_opinion_Web_Version.pdf Accessed on 16/12/10

Institute for Environment Management and Assessment (2004). The Guidelines for Environmental Impact Assessment.

Landscape Institute and Institute of Environmental Assessment (1995, 2002). Guidelines for Landscape and Visual Assessment (1995 and 2nd Edition 2002).

Office of the Deputy Prime Minister (2004). Planning Policy Statement 22: Renewable Energy.

Royal Haskoning (2010). Kentish Flats Offshore Wind Farm Extension Environmental Scoping Study Report for Vattenfall Wind Power Limited October 2010.

Scottish Natural Heritage (SNH) (2001). Guidelines on the Environmental Impacts of Wind Farms and Small Scale Hydroelectric Schemes.

Scottish Natural Heritage (SNH) (2005). Cumulative Effects of Wind Farms, SNH Guidance Note, Version 2.

Scottish Natural Heritage (2009). Siting and Designing windfarms in the landscape, Version 1, December 2009.

University of Newcastle (2002). Visual Assessment of Wind Farms Best Practice, SNH Commissioned Report.

Vattenfall (2011). Kentish Flats Extension Report. IPC document number 3.1.