

Kelling to Lowestoft Ness Shoreline Management Plan: Strategic Environmental Assessment Report – Volume 1 Non Technical Summary Prepared by:

Charlotte Clinton

**Environmental Scientist** 

Approved by:

Nigel Pilkington Regional Director

Rev No	Comments	Date
3	Updated following feedback from public consultation.	January 2012
2	Updated following comments from Coastal Group	December 2009
1	Draft SEA Environmental Report	February 2009

AECOM House, 179 Moss Lane, Altrincham, Cheshire, WA15 8FH

Telephone: 0161 927 Website: http://www.aecom.com

Job No 60052694 Reference

Date Created February 2009

This document has been prepared by AECOM Limited ("AECOM") for the sole use of our client (the "Client") and in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Client. Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the document.

No third party may rely upon this document without the prior and express written agreement of AECOM.

f:\projects\environmental management & development - north norfolk smp\reports\sea\volume 1\kelling to lowestoft ness smp sea volume 1 nts jan-2013.doc

# **Table of Contents**

Introduction	4
Kelling to Lowestoft Ness Shoreline Management Plan	6
SEA Criteria of the Kelling to Lowestoft Ness SMP	11
Key Issues along the Coastline	12
Results of the SFA	14

### Introduction

### Introduction to SEA

This is a summary of the Environmental Report (ER) produced as part the Strategic Environmental Assessment (SEA) of the Kelling to Lowestoft Ness Shoreline Management Plan (SMP).

Directive 2001/42/EC of the European Parliament, and the associated Environmental Assessment of Plans and Programmes Regulations 2004, requires that a Strategic Environmental Assessment (SEA) be carried out by certain plans and programmes that are required by legislative, regulatory or administrative provisions. The Directive is intended to ensure that environmental considerations (both good and bad) are taken into account alongside other economic and social considerations in the development of relevant plans and programmes. Whilst it has been determined that SEAs of SMPs are not required by legislative, regulatory or administrative provisions, they do set a framework for future development and have much in common with the kind of plans and programmes for which the Directive is designed. Therefore, Defra has recommended that the SMPs comply with the requirements of the Directive.

The SEA process is systematic and identifies and assesses the likely significant environmental effects of a plan or programme and its alternatives. SEA is used to aid policy development and helps organisations, plan developers and authorities consider the effects of plans and programmes in a structured way to demonstrate that policy development has considered environmental and other effects.

### **Stages of the SEA Process**

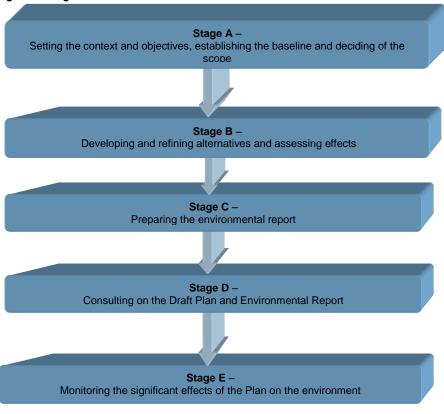
The UK Governments main guidance note on SEA 'A Practical Guide to the Strategic Environmental Assessment Directive' (ODPM September 2005) sets out guidance for the practical application of the Directive within England and Wales.

The guidance breaks the requirements of the SEA Directive down into a series of 'Stages' (Stages A to E). Each of these stages will inform and interact with the assessment of the SMP. Figure A below illustrates the stages of the SEA process. The SEA process is iterative in its approach and is designed to inform the development of the plan by ensuring the most environmentally sustainable

policies are selected. Therefore this SEA has assessed a range of alternative policy options for each unit including a more detailed assessment of the preferred policy options. The assessment of effects and alternatives is presented within the Environmental Report and summarised within this NTS. The Environmental Report and NTS is designed to inform the reader about:

- the approach used in undertaking the assessment,
- any significant effects have been identified and
- the proposed methods of avoiding / mitigating the effect.

Figure A: Stages in the SEA Process



### Kelling to Lowestoft Ness SEA Activities to Date

Although an SEA was conducted as part of the original SMP, AECOM has been commissioned to prepare a separate SEA Report to accompany the final SMP. The aim of this SEA was to assist in the assessment and refinement of SMP policy options. This active use of the SEA has happened alongside a Habitats Regulations Assessment which is required under the European Directive 92/43/EEC (The Habitats Directive) to ascertain whether the policies are likely to have a significant adverse effect on the integrity of any European Site within the plan area or adjacent areas. Consideration of the requirements of the Water Framework Directive have also been considered and are presented in a separate report (A Retrospective Water Framework Directive Appraisal (AECOM, October 2009).

As part of Stage A of the SEA process, a scoping exercise would usually have been undertaken to identify the key issues that would form the focus of the detailed assessment stage.

Extensive consultation was undertaken to determine the scope of the original SMP and SEA and a three level approach was adopted which included the Client Steering Group (CSG) and Extended Steering Group (ESG) and additional stakeholders. Therefore it was agreed with the client and key stakeholders that the key environmental issues have already been included in the original SMP and that no further scoping work would be undertaken. However the baseline information has been updated where necessary.

The SEA of the original SMP was integrated within the SMP report itself and various appendices. The information contained within these documents has been used as the basis of this SEA and included and updated where appropriate within the Environmental Report (ER). The following lists the documents produced as part of the original SMP that have been used to inform this SEA.

- Appendix C: Baseline Process Understanding
- Appendix D: Thematic Studies
- Appendix E: Issues and Objective Evaluation
- Appendix F: Policy Development and Appraisal
- Appendix G: Preferred Policy

These documents have been presented in Appendices 2.1 to 2.6 of the Environmental Report.

## Kelling to Lowestoft Ness Shoreline Management Plan

### Introduction to SMPs

A Shoreline Management Plan (SMP) is a non-statutory plan which is produced by Coastal groups that are made up of maritime Local Authorities and other bodies with coastal defence responsibilities or interests.

A SMP sets high level approaches for the future in terms of erosion and flood risk along the shoreline. However, it does not set policy for anything other than coastal defence management.

The SMP considers objectives, policy setting and management requirements for three main timeframes:

- 'From present day' 0-20 years
- 'Medium term' 20-50 vears
- 'Long term' 50-100 years

The generic shoreline management policy options considered within the SMP are those defined by Defra, which are:

**Hold the line** – maintain or upgrade the level of protection provided by existing coastal defences

Advance the line - build new defences seaward of the existing defence line

**Managed realignment** – allow retreat of the shoreline inland with appropriate management to limit or control that movement

No active intervention – a decision not to invest in providing or maintaining defences

### Kelling Hard to Lowestoft Ness SMP

The area covered by this SEA includes the coastline from Kelling to Lowestoft Ness along the Norfolk Coast.

The original SMP for Kelling Hard to Lowestoft Ness was completed in 1996. Since that time many lessons have been learned and reviews funded by Defra (2000, 2005) have examined the strengths and weaknesses of various plans and revised guidance has been issued.

The SMP provides the opportunity to develop policy for sustainable shoreline management, taking into consideration the environmental, social and economic issues within each of the sections of coastline.

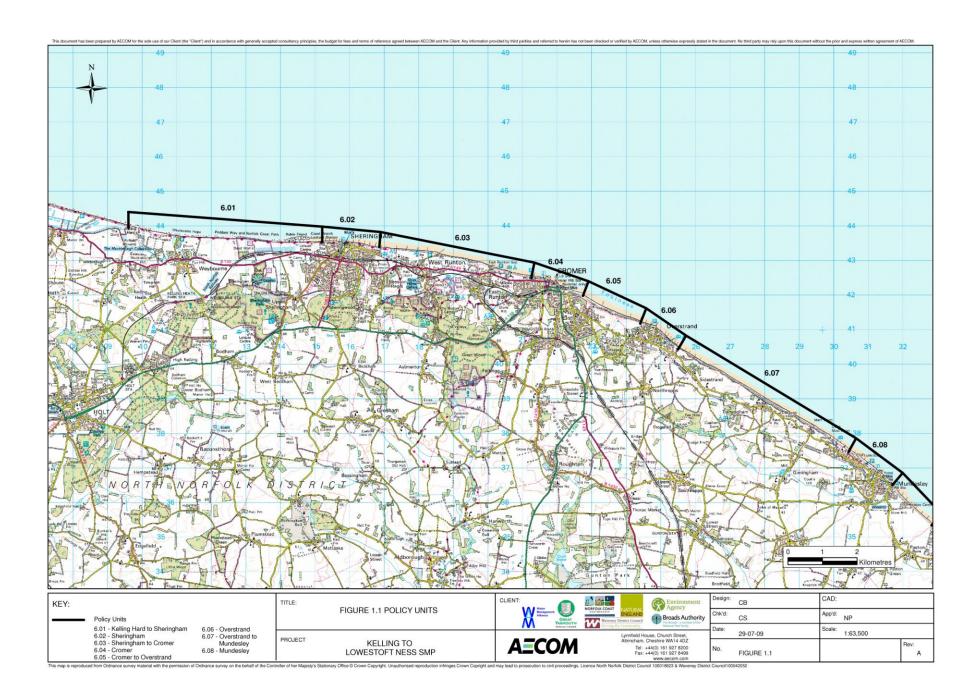
The SMP report has been updated from the first revision taking into account new information and knowledge gained in the interim period. This latest version of the plan has taken account of the following:

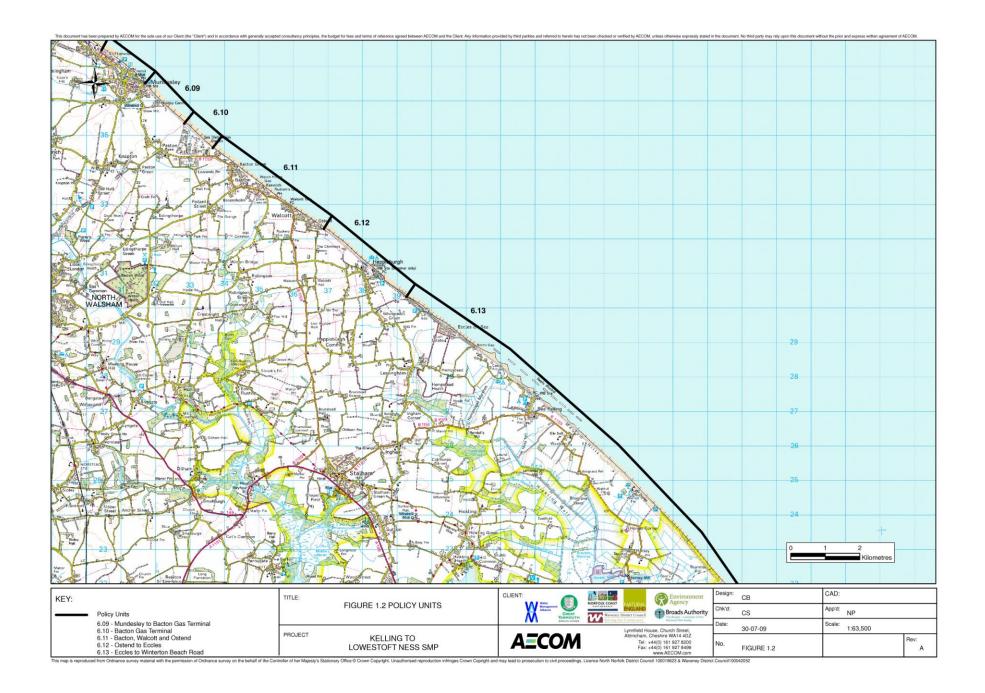
- Latest studies and modelling undertaken since the last SMP (e.g the Southern North Sea Sediment Transport Study, Winterton Coastal Habitat Management Plan (CHaMP) and Futurecoast);
- Issues identified by most recent defence planning (i.e. 6 coastal defence strategy plans which have now been produced to cover most of the SMP area between Cromer and Lowestoft);
- Changes in EU legislation (e.g. the EU Directives); and
- Changes in national flood and coastal defence planning requirements (e.g. the need to consider 100 year timescales in future planning, modifications to economic evaluation criteria etc).

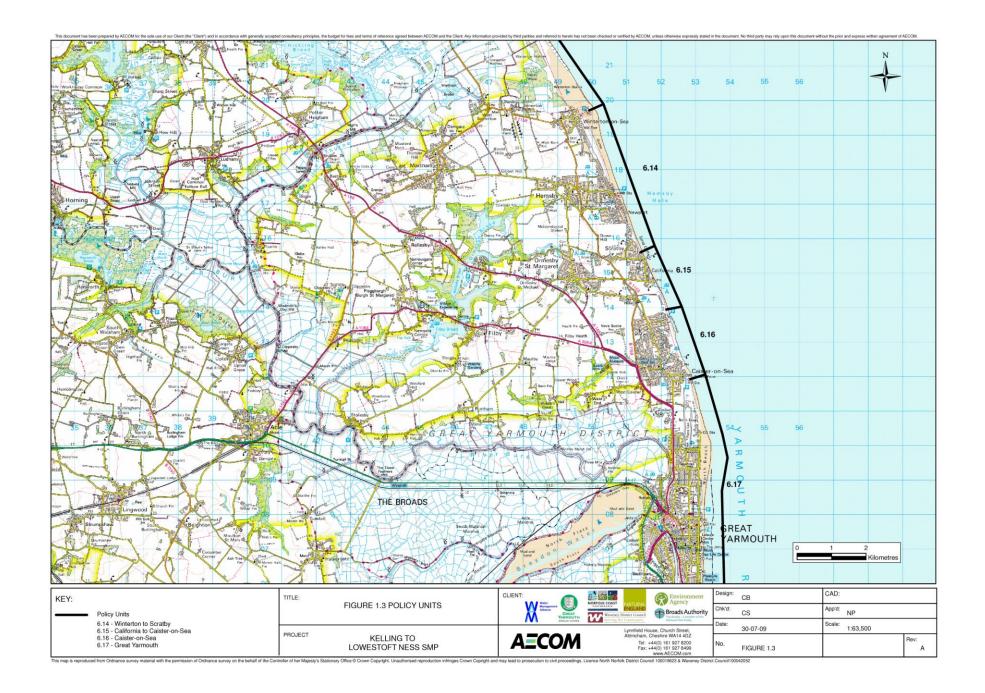
The Kelling to Lowestoft Ness SMP constitutes SMP 6 in England. Within this unit the coastline has been divided up into 24 policy units. These are listed below and have been illustrated on Figures 1.1 to 1.4.

- 6.01 Kelling Hard to Sheringham
- 6.02 Sheringham
- 6.03 Sheringham to Cromer
- 6.04 Cromer
- 6.05 Cromer to Overstrand
- 6.06 Overstrand
- 6.07 Overstrand to Mundesley
- 6.08 Mundesley
- 6.09 Mundesley to Bacton Gas Terminal
- 6.10 Bacton Gas Terminal
- 6.11 Bacton. Walcott and Ostend
- 6.12 –Ostend to Eccles

- 6.13 Eccles to Winterton Beach Road
- 6.14 Winterton to Scratby
- 6.15 California to Caister-on-Sea
- 6.16 Caister-on-Sea
- 6.17 Great Yarmouth
- 6.18 Gorleston
- 6.19 Gorleston to Hopton
- 6.20 Hopton
- 6.21 Hopton to Corton
- 6.22 Corton
- 6.23 Corton to Lowestoft
- 6.24 Lowestoft North (to Ness Point)









## SEA Criteria of the Kelling to Lowestoft Ness SMP

### Impact of the SMP on the SEA Topics

The SEA assesses the impact of the SMP on a range of environmental topics that have been taken from the SEA Directive and amended to make them relevant to the costal environment. The topics that have been assessed are set out in Table 1 below:

Table 1: SEA Topics

SEA Directive Key areas for consideration in the SEA of Kelling to Lowesto		
Topics	Ness SMP	
Biodiversity,	Protected sites and species	
Flora and Fauna	Ecosystems and biological diversity	
Soil	Sediment, geology, geomorphology (coastal processes)	
Water	Water quality	
vvalei	Coastal flooding	
Air	Dust	
Noise	Noise	
Climatic Factors	Reducing CO <sub>2</sub> Emissions	
Cillianc Factors	Adapting to a change in climate	
Archaeology and Heritage	Historic Environment and Archaeology	
Landsoons	Natural Landscape seascape	
Landscape	Built landscape and townscape	
Material Assets	Coastal material assets	
Population	Coastal activities / industries	
Human health	Physical and mental wellbeing	

Due to the sensitivity of the issues which surround the SMP it was decided that each topic should be considered in its own right, independently of any others, therefore the assessment has not included any ranking by level of importance (high, medium or low) of the topics. The main purpose of the SEA is to provide guidance and advice where potentially significant adverse effects could occur and how these can be avoided or reduced. It is not the role of SEA to determine which of the topics assessed are of greater or lesser value to the shoreline than others.

The assessment criteria used to assess the impact of the SMP on the above topic areas is set out in Table 2.

**Table 2: Assessment Criteria** 

Potential Effect				
Significant Adverse	××			
Negative	×			
No impact	=			
No change from baseline	~			
Slight Beneficial	✓			
Beneficial	44			

## Key Issues along the Coastline

### **Protected Sites and Species**

There are a number of protected sites and species situated along the Kelling Hard to Lowestoft Ness coastline. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsars, Sites of Special Scientific Interest (SSSIs) and County Wildlife Sites (CWS).

At present the defences along some of the sections of the coastline are preventing the natural erosion of the SSSIs which are designated for their geological exposure. In turn in areas such as Eccles to Winterton the presence of the defences are protecting a number of protected sites within the Broads from saline intrusion. In addition the presence of defences, are also protecting a number of CWS from erosion.

### **Ecosystems and Biological Diversity**

Currently the defences along the coastline are protecting a number of ecosystems such as cliff top grassland. If theses defences were removed or allowed to erode this could result in a loss of these habitats, however this in turn may provide the opportunity for new habitats to establish.

### Sediment, geology, geomorphology (coastal processes)

Currently the sea defences at a number of locations are preventing sediment supply from cliff erosion and the movement of sediment along the coastline. If all defences remain in place, the constraint in coastal processes will result in the loss of beaches and coastal settlements at some locations becoming more vulnerable to erosion and potentially flood events.

### **Water Quality**

Currently all water bodies within (including coastal and transitional) along this section of coast are either at good or moderate ecological status under the Water Framework Directive (WFD). There are a number of historical landfill sites that are located close to the coast which are currently being prevented from erosion by sea defences.

### **Coastal Flooding**

A number of areas are currently at risk from coastal flooding in particular Eccles to Winterton which is currently being protected by the presence of a sea wall.

### Dust, Noise and Reducing CO<sup>2</sup> Emissions

Baseline information has not been established on these topic areas as it was decided that they did not fall within the scope. Only temporary impacts are predicted on these areas which are associated with construction of or maintenance to sea defences. However the SEA has identified where any temporary impacts are likely so that a baseline situation can be established at project level to enable the necessary mitigation measures can be put in place prior to any construction works.

### Adapting to a change in climate

Global temperatures have risen by about  $0.6^{\circ}\text{C}$  since the beginning of the  $20^{\text{th}}$  century. It is predicted that temperatures will continue to rise between  $2^{\circ}\text{C}$  and  $4.5^{\circ}\text{C}$  by the 2080s in addition it is predicted that the winters will become wetter and the summers dryer with increased storminess. Sea level has risen by about 1mm /year during the  $20^{\text{th}}$  century.

### Historic Environment and Archaeology

There are a number of historical and archaeological sites along the coastline. These include and number of scheduled monuments, listed buildings and archaeological sites many relating to wartime defence and the Anglo Saxon era.

### Natural landscape and seascape

A large proportion of the coastline from Kelling Hard to Bacton and a small section from Sea Palling to Winterton are within an Area of Outstanding Natural Beauty (AONB). In addition the plan areas fall within five separate Landscape Character Areas (LCAs) which are characterised individually by their uniqueness.

### **Built landscape and seascape**

There are number of large towns and settlements along the shoreline which include Sheringham, Cromer, Great Yarmouth, Goreleston and Lowestoft. These towns and the other smaller settlements along the coastline are all unique result of their built characteristics.

### Coastal material assets

The coastline between Kelling Hard and Lowestoft Ness has a number of key material assets, these include, the gas works at Bacton and the Port at Gorleston / Great Yarmouth. Some of the other assets include private residential and commercial property.

### Coastal activities and industries

There are a range of activities along the shoreline between Kelling Hard and Lowestoft Ness many of which are reliant on the tourism industry. Other activities include, agriculture, commercial and recreational fishing, industries associated with ports and other commercial and industries.

### Physical and mental wellbeing

Physical and mental wellbeing is associated with physical health such as the quality of bathing waters in the region, food quality such as of fish and shellfish, as well as mental health. This relates to stress and anxiety associated with the potential loss of property or employment.

## Results of the SEA

### Introduction

This non-technical summary should be read in conjunction with the full Environmental Report which provides explanation as to why the significant impacts have been indentified as well where slight beneficial / negative and temporary impacts have also been predicted. It is also imperative that the SMP itself is referred to as this provides detail on why the various policy options have been selected, the further strategies are required and how the policies will be implemented.

#### Results of the SEA

The SEA has identified that if the policy options were to be taken forward as they stand there will be significant adverse effects on the built landscape and townscape, coastal material assets, coastal activities and industries and physical and mental wellbeing, which has been attributed to the loss of housing, infrastructure and associated industries. Other adverse impacts have been identified on protected sites and species, ecosystems and biological diversity, coastal processes, water quality, coastal flooding and the historic environment and archaeology.

The SEA has also identified beneficial impacts on coastal processes as the reduction in the amount of defences along this stretch of the coastline will allow for a more naturally functioning coastline to develop. This in itself could result in positive impacts along some sections of the SMP area as it will allow the natural beaches to re-establish and sediment supply to be maintained to a number of European protected sites. The reduction of defences will also have beneficial impacts on a number of SSSI and SAC designated cliffs which are designated for their geological exposure.

At this stage of the plan's development there are a number of uncertainties surrounding the specific implications of implementing the policy options. Therefore the plan will be subject to more detailed coastal strategy studies which will confirm the deliverability of these policy aims. If the aims are found to be deliverable they will be implemented after appropriate mitigation has been developed. If the aims are not found to be deliverable then the existing (SMP1) policy will be continued until the next review.

The results of the SEA have been summarised in the following sections. Please note that these sections only present a brief description of the results of the assessment.

### Protected sites and species

Generally the impact on the protected sites that are located along the coastline will be beneficial as where defences are allowed to deteriorate and fail this will result in increased exposure of a number of SSSIs that are designated for their geological exposure. There is the potential for some negative impacts in the sort and medium term on some small sections of these sites where the defences are maintained to allow for appropriate social mitigation to be implemented, however ultimately the long term aim is to allow the coastline to function naturally.

Currently Great Yarmouth North Denes SPA is accreting, however there is the potential that during the medium term before several of the policy units to the north move to managed realignment or no active intervention allowing for increased sediment into the system that this site could start to narrow and steepen. This could result in a decreased area for breeding birds, thus potentially having a negative effect on the SPA.

Within policy unit 6.10 the policy is to hold the line into the long term. This could result in adverse effects on Winterton to Horsey Dunes SAC and Great Yarmouth North Denes SPA, through the prevention of natural coastal processes and this policy unit forming a promontory. However the policy aim is conditional on further monitoring being undertaken and measures included within the policy for beach recharge and sediment bypassing.

Within policy unit 6.13 the policy is to hold the line into the long term, however this is conditional on this policy option remaining technically, economically, socially and environmentally sustainable. If the line is to continue to be held and there is a reduction in beach replenishment exposing the sea wall thus preventing the natural movement of the dunes this could result in an adverse impact on Winterton Dunes SAC. In turn if the managed realignment policy is

adopted this could result in saline intrusion into the Broads SAC, SPA and Coastal flooding Broadland Ramsar in the long term.

### **Ecosystems and biological diversity**

Ultimately the overall aim of the SMP is to achieve as far as possible a naturally functioning coastline. The movement of policy units from being defended to no active intervention will result in the loss of cliff top habitats and grasslands being lost. However the change in policy could result in potential for new habitat creation as the coastline adopts more natural processes.

### Sediment, geology, geomorphology (coastal processes)

Where the policy options result in sections of the coast moving from being defended to no active intervention or managed realignment this will result in beneficial impacts on coastal processes as it will allow a more naturally functioning coastline to develop as well as beach development. On the reverse along policy units such as Cromer and Great Yarmouth where the policy option is to hold the line into the long term this will have a negative impact on coastal process and at some locations a complete loss of the beach.

### **Water Quality**

Whilst a separate report has been produced which assesses the SMP against the requirements of the Water Framework Directive (WFD) which has addressed the potential for impacts on whole water bodies. The SEA has identified the potential for impacts on a local scale within the individual policy units. It has been indentified that where the policy options result in a loss of infrastructure such as properties and road and any associated services such as sewers this could have a negative impact on water quality if allowed to erode un mitigated. Within several of the policy units sewage pumping stations are located close to the coast which if allowed to erode without appropriate mitigation in place could have a negative impacts on local water quality. In addition there is an oil dump within policy unit 6.23 which if the no active intervention policy option is implemented will result in oil dump eroding during the medium term. If this is allowed to happen without remediation first taking place, this will have adverse impacts on water quality.

An increased in coastal flooding in the future will primarily be attributed to a rise in sea level. However where defences which provide defences against flooding are currently present and these are removed or allowed to deteriorate this will have a negative impact on coastal flooding. Within the policy unit's where the intention is to hold the line this will continue to provide protection against flooding. However, it is within these units where the beach will be significantly reduced or lost in the long term, this will result in the defences becoming more exposed and increased maintenance may be required.

### Dust, noise and Reducing CO<sup>2</sup> emissions

Impacts on these topics will be temporary and short term. Where increased maintenance / replacement of coastal defences are required this could have short term temporary impacts on noise, dust and increased CO<sup>2</sup> emissions.

### Adapting to the change in climate

It is predicted that in the future the climate will become warmer, with wetter winters and dryer summers. It is also predicted that there will be sea level rise (6mm/year (Defra 2003) and increased storminess including an increased frequency in storm surges. Negative impacts have been identified on those policy units where no prevention in the way of defences is predicted. Positive impacts have been identified in the policy units where it is proposed that the defences will remain in place, providing protection against storm surges and a rise in sea level. However, it should be noted that where defences are lost or allowed to deteriorate and a naturally functioning coastline to develop, this in itself will provide a level of natural protection against a change in climate, whereas where the defences remain it is likely that the increased maintenance will be required in order to protect their integrity.

### Historic environment and archaeology

Where the policy options are for no active intervention or managed realignment, coastal archaeological and historical sites will be lost as a result of coastal erosion. These sites include monument sites of high importance within policy unit 6.01; listed buildings the 'Sea Marge' and 'The Pleasance' within policy unit 6.06; a Saxon Cemetery in policy unit 6.09; heritage buildings on the SMR register in policy unit 6.11; a Grade I listed St Mary's Church and grade II listed Manor House and Hill Hotel within policy unit 6.12; a grade I listed Waxham Barn in policy unit 6.13 under the managed realignment scenario and Corton Church in policy unit 6.22 which has high archaeological value.

### Natural landscape and seascape

In general where the policy options are for no active intervention or managed realignment this will result in a naturally functioning coastline and in general positive effect on the natural landscape. Where the defences are to remain in place and as a result the beach is lost this will have a negative effect on the natural landscape. In addition where coastal erosion is allowed to take place within the AONB this will result in a net loss of the area and could have an effect on local character as a result of property loss and any associated change in land use. However, it should be considered that the ultimate aim along the AONB coastline is to allow natural processes to take place.

### **Built landscape and townscape**

In general where the policy options are to hold the line preventing property loss this will have a positive effect on the built landscape and where the defences are allowed to fail resulting in property loss this will have a negative effect. However, there could be indirect effects on the town areas caused by blight and dereliction associated with impacts on the tourism industry caused by the loss beaches along the frontage and property and infrastructure in the surrounding areas.

### Coastal material assets

Where no active intervention and managed realignment policy options are implemented this will result in the loss of property and infrastructure thus within these policy units a negative impact on coastal material assets has been identified.

### Coastal activities and industries

Where property, infrastructure and land are lost, this will have a negative effect on coastal activities and industries. The loss of tourist facilities such as holiday

homes and caravan parks may result in negative impacts on the local tourist economy. In addition the loss of beach along the main town frontages such as Cromer and Great Yarmouth could also result in an impact in the local tourist trade. Other industries along the coast may also be affected as a result of the loss of coastal roads preventing employees and supplies reaching these industries.

### Physical and mental wellbeing

Adverse affects on physical and mental well being are identified where the policy options will result in a loss of property, in particular, homes and businesses. It has also been indentified that in the areas where the hold the line policy is proposed in the long term which will protect property, this may also result in a negative impact on physical and mental wellbeing associated with a downturn in tourism and any associated blight as a result.

### **Cumulative Effects**

For impacts to be fully assessed the cumulative effects along the shoreline also needs to be looked at as implementing a policy within one unit may result in impacts further along the coast. For example maintaining defences may prevent the supply / transfer of sediment along the coast.

Cumulative impacts can also be secondary for example the loss of the beach could result in a reduction in visitor numbers. These impacts have been included within the assessments and have been detailed in the results section.

### Mitigation

The SMP is a very high level plan and the policy options contained within it will be subject to the more detailed strategies set out within the SMP Action Plan to determine viability of the plan in terms of the economic, social and environmental impacts. Until these detailed strategies are carried out it is not possible to determine detailed mitigation measures as the specific impacts are unknown. However, no policy options should be implemented until these detailed strategies are undertaken and appropriate mitigation developed where adverse impacts have been predicted.

### **Residual Effects**

As the detailed strategies have not been carried out, it has not been possible to identify specific mitigation measures, therefore at this stage it has not been possible to predict the residual effects of the assessment as they could be misconstrued. It is expected that once the detailed strategies have been undertaken and detailed mitigation developed some of the significant adverse impacts that have been identified will be reduced.

### Monitoring

As there are still many uncertainties which surround the SMP, the monitoring strategy should be tightly linked to the five to ten yearly reviews of the SMP. Coastal processes will continue to be monitored as part of the SMP which will set the base for the monitoring requirements of the SEA. Monitoring should be implemented, however monitoring measures will require review once the detailed strategies have been carried out and should be reviewed, updated amended and added to during the next review of the SMP or due to any unforeseen circumstance that occur in the interim.

### **Next Steps**

The original NTS and associated Environmental Report were published in May 2010 for public consultation, alongside the SMP. Following feedback received during this period this NTS and associated Environmental Report have been updated and will be re-consulted on for a period of seven weeks commencing in February 2012. Any comments on this NTS and ER should be sent to the following address:

AECOM House 179 Moss Lane Altrincham WA15 8FH

Or sent by email to the following:

nigel.pilkington@aecom.com

After the SMP has been adopted a Post Adoption Statement (PAS) will be produced which will detail how the SMP has taken the findings into account.

**AECOM**