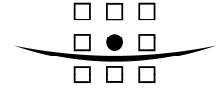


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## **Appendix F**

# **Strategic Environmental Assessment**

- A) Environmental Report**
- B) Statement of Environmental Particulars**
- C) Assessment of plans, policies and programmes**



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## **Appendix F Strategic Environmental Assessment**

### **A) Environmental Report**



# **Suffolk Shoreline Management Plan (SMP)**

## Strategic Environmental Assessment (SEA) Environmental Report

Suffolk SMP Client Steering Group (CSG)

January 2010

SEA Environmental Report

9S4195



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## NON-TECHNICAL SUMMARY

A Shoreline Management Plan (SMP) is a large-scale assessment of the risks associated with coastal processes and aims to reduce the risks to the social, economic, natural and historic environment through effective and sustainable shoreline management. A SMP aims to manage risk by using a range of methods which reflect both national and local priorities, to reduce the threat of flooding and erosion to people and their property, as well as benefiting the environment, society and the economy in line with the Government's 'sustainable development principles'.

The Suffolk coast contains some of the largest areas of undeveloped coastline in the UK, being characterised by low-lying marshes, reedbeds, sand and shingle beaches, reclaimed tidal land, heathland, forest and farmland. Each of these habitats in turn supports a range of species of high conservation value, including birds, plants and invertebrates. The high conservation value is reflected in the fact that the majority of the coastline is subject to statutory nature conservation and landscape designations, which have important implications for the Suffolk SMP, which covers approximately 72 km of coastline, stretching from Lowestoft Ness to Felixstowe Landguard Point.

Under Directive 2001/42/EC of the European Parliament and European Council on the assessment of the effects of certain plans and programmes on the environment ('the SEA Directive'), a Strategic Environmental Assessment (SEA) must be undertaken for plans and programmes that are required by legislative, regulatory or administrative provisions. Although a SEA of the Suffolk SMP is not a statutory requirement, SMPs clearly set a framework for future development and have much in common with the kind of plans and programmes for which the Directive is designed; this therefore follows the approach set out in the legislation. SEA provides a systematic appraisal of the potential environmental consequences of high-level decision-making; by addressing strategic level issues the SEA process shapes the selection of the preferred options, directs individual schemes towards the most appropriate solutions and locations, as well as helping to ensure that resulting schemes comply with legislation and other environmental requirements.

The SEA is therefore intended to ensure that consideration of the socio-economic and environmental issues relating to the coast has been central in the development and evaluation of policy. Within the SEA process and in a manner analogous to that used throughout the SMP process, the term 'environment' has been used to cover the following receptors (as defined in Environmental Assessment of Plans and Programmes Regulations, SI 1633 2004):

- Population & communities (including human health, critical infrastructure etc);
- Cultural heritage, including architectural and archaeological heritage;
- Material assets;
- Biodiversity, fauna and flora;
- Soil;
- Water;
- Air;
- Climatic factors; and
- Landscape.

The SEA process has developed two distinct documents; a Scoping report and an Environmental report. The Scoping report established an environmental baseline for the Suffolk coastline and through doing so developed a series of SEA assessment criteria, by which the SMP policies could be assessed. The Scoping report underwent a four week consultation period with the Suffolk SMP Client Steering Group (itself comprised of statutory consultees, including the appropriate local authorities and government agencies). Following the consultation period and the provision of feedback by the statutory consultees, the environmental assessment of preferred SMP policy was undertaken using the SEA assessment criteria agreed. This report is the summation of that process. The environmental issues identified and agreed through the scoping as being of key importance on the Suffolk coast is as follows:

- Threat to biodiversity on a dynamic coast;
- Threat to the environmental conditions to support biodiversity and the quality of life;
- Needs to maintain a balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths and the implications of sea level rise;
- Protection of a sustainable water supply in the coastal zone;
- Threats from development and coastal management on the coastal landscape and AONB;
- Potential loss of historic and archaeological features on a dynamic coastline;
- Threats to coastal communities and culture on a dynamic coastline;
- Protection of coastal towns and settlements; and
- Protection of key coastal infrastructure (roads, bridges etc).

The methodology used to identify and predict likely the significant environmental effects related to the implementing the Suffolk SMP involved the use of an evidence based, expert judgement system based on the widely accepted Source-Pathway-Receptor model (SPR). Due to the intricate and multi-variate nature of SMPs the appraisal took the form of a qualitative assessment, based on professional judgement and supported by peer-reviewed literature, with the outcomes scored against seven categories between major positive and major negative. The assessment has been provided at two levels:

- 1) Primary analysis of each management area (detailed assessment); and
- 2) Secondary analysis which seeks to establish the overall effects of all management areas (the plan as a whole).

The primary analysis was recorded on a series of detailed tables which fully documented the effect of SMP policy on the assessment criteria in each management area. A full record of this primary assessment is provided in **Appendix I**. An additional assessment is also provided in this report which shows how SMP policy in specific management areas has complied with the developed assessment criteria. Management areas where SMP policy has recorded numerous negative decisions (with regard to the assessment criteria) have been discussed on an individual basis, while those which have limited numbers of negative decisions are discussed under the secondary analysis.

The function of a SMP is to consider the coast as a whole from the perspective of managing coastal flood and erosion risk. The behaviour of the Suffolk coastline is driven by its geological make-up and it is therefore evident that not one aspect of the coastal (in terms of its physical behaviour, natural or built) environment dominates. There is a complex interdependence between different values along this linear coast



which, put simply, means that a decision taken within one SMP management area has the potential to affect multiple adjacent policy units.

As a result, if SMP policy at each management area was to be assessed individually and in-combination, then there would be a multiplier effect along the coastline such that each management unit would need to be assessed not only for the four SMP policy options, but for each option in combination with one of four options for the two adjacent management units. Further rationale for this decision was based upon the fact that in many management areas, only a limited number of policy options are actually appropriate; for example, a policy of managed realignment would be wholly inappropriate for a heavily populated conurbation, as would a policy of advance the line on a dynamic and natural shoreline. The effects of policy choices in one unit are typically determined by others in the same management area and a more appropriate response to the consideration of alternative options is the use of baseline scenarios which form the basis of SMP development. In this respect, alternatives have been considered as options of a) no active Intervention and b) alternative management scenarios that were considered within the SMP as potential feasible options. In this respect the SEA will mirror and have direct regard to the real alternative within the context of the SMP.

In addition to providing the results of this assessment, this Environmental report also provides monitoring and mitigatory measures to ensure that effects of the Suffolk SMP on the coastline are minimised as far as possible. The specification of monitoring and the actions to enact the monitoring requirements will be included within the SMP Action Plan. This approach provides the most robust mechanism for delivery, since the SMP Action Plan is a) directly linked to SMP delivery and b) builds on the organisational roles developed within the SMP process.

A key driver for the development of SMP policy was the provision of balance between the two contrasting and virtually mutually exclusive requirements of ensuring the continued defence of established settlements on a fixed coastline, while promoting coastal dynamism and ensuring that areas of the Suffolk coast which are wild and remote in nature retain this special quality. In a wider context, the maintenance of this balance is dependent on sediment movement along the coast and the manner in which the coast develops in response to this. In pursuit of the provision of this balance, the SMP has devised a strategic approach to management, which focuses on holding locations which are key features / receptors, while enabling the natural evolution of the coast in areas between fixed points. A further complexity has been the need to sustainably manage, in a natural manner, coastal habitat which has either been man-made or has responded to previous coastal management practice. It is in providing this balance that localised conflicts occur. By maintaining the protection of historic settlements and coastal communities, the potential exists for adverse effects on coastal habitat to arise from factors such as coastal squeeze and the limiting of sediment movement along the coast. A Habitats Regulations Assessment (HRA) has been undertaken parallel to this SEA, to determine likely adverse effects on International (SAC, SPA & Ramsar) sites.

On the basis of this SEA, the Suffolk SMP has been considered to have been successful in providing this balance; only three significant adverse effects were identified, with the majority of the remaining effects being either minor positive or neutral. Of the

management areas which have been assessed as having a minor adverse effect, mitigation measures have been provided in the following section to offset these effects. The SMP can therefore be concluded to have provided a range of positive benefits to the environment and where minor negative effects have been identified, mitigation has been devised to address these effects.

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# 1 INTRODUCTION AND BACKGROUND

## 1.1 The Suffolk Shoreline Management Plan (SMP)

This report is the Strategic Environmental Assessment (SEA) Environmental Report (ER) for the second Suffolk Shoreline Management Plan (SMP). The Suffolk SMP2 runs from Lowestoft Ness to Felixstowe Landguard Point and covers approximately 72 km of coastline.

## 1.2 The SMP context for the SEA

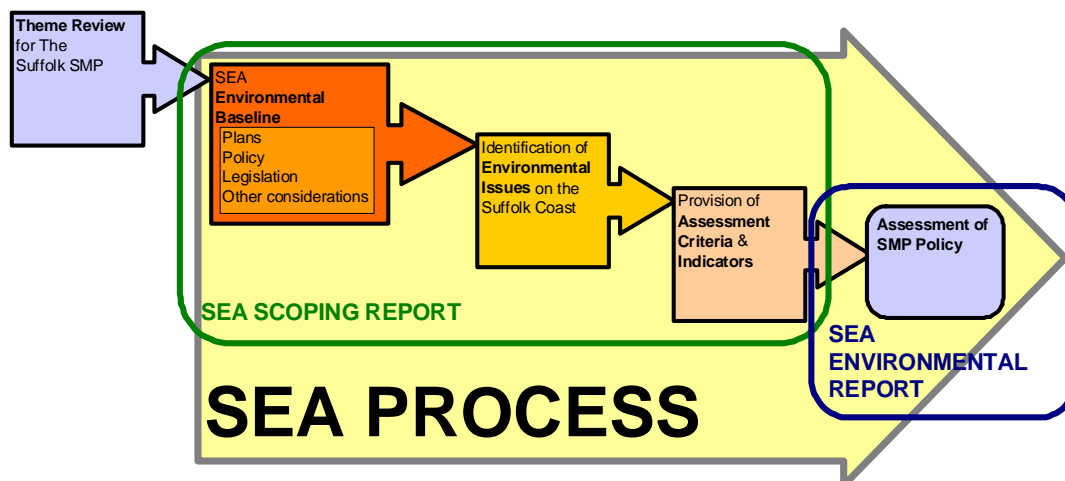
The SEA process to accompany the production of the SMP is intended to ensure that consideration of the environmental issues relating to the coast is central to the development and evaluation of policy. This **Environmental Report** provides the mechanism to support a structured evaluation of the environmental issues relating to the Suffolk coast based on the use of the assessment criteria which were developed within the **Scoping Report**. Within this SEA Environmental Report and the preceding scoping report, and in a manner analogous to that used throughout the SMP process (Defra, 2006), the term environment is used to cover the following **receptors** (as defined by SI 1633):

**RECEPTORS**

- Biodiversity, fauna and flora;
- Population & communities (including human health, critical infrastructure *etc*);
- Material assets;
- Soil;
- Water;
- Air;
- Climatic factors;
- Cultural heritage, including architectural and archaeological heritage; and
- Landscape.

The role of this report within the SMP SEA processes is presented in **Figure 1.1**.

**Figure 1.1 SEA process within the development of a SMP**



### 1.3 Why we are using Strategic Environmental Assessment (SEA)

SEA provides a systematic appraisal of the potential environmental consequences of high-level decision-making (*i.e.* plans, policies and programmes). By addressing strategic level issues, SEA aids the selection of the preferred options, directs individual schemes towards the most appropriate solutions and locations and helps to ensure that resulting schemes comply with legislation and other environmental requirements.

Under Directive 2001/42/EC of the European Parliament and European Council on the assessment of the effects of certain plans and programmes on the environment, a strategic environmental assessment (SEA) must be undertaken for plans and programmes that are required by legislative, regulatory or administrative provisions. SMPs clearly set a framework for future development and have much in common with the kind of plans and programmes for which the Directive is designed, although it must be noted that SEA is not a statutory requirement for SMPs and that this is therefore not a statutory document.

The Defra SMP guidance (Defra, 2006) states that the environmental effects of all policies must be considered before deciding which policies will be adopted. Consideration should be made of both the positive and negative effects of options on wildlife and habitats, populations and health, soil, water, air, climate factors, landscape, cultural heritage and the intrinsic relationship between these. As a result Defra has recommended that assessment of SMP policies using the approach described in the Directive is adopted. The legislative act which transposes the Directive into domestic law is the Environmental Assessment of Plans and Programmes Regulations (SI 1633, 2004). The main aim of the EU Directive is to "*provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development*".

This document represents the second stage in the process of providing an SEA for the Suffolk SMP, with the third and final stage being the provision of a post-adoption statement.

During the preparation of this document we have utilised, where applicable, the guidance provided by the following:

- Defra (2004). Guidance on Strategic Environmental Assessment;
- Defra (2006). Shoreline Management Plan guidance: Volume 1: Aims and requirements;
- Environment Agency (2008). Internal Environment Agency guidance on SEA of internal Plans and Programmes;
- Environment Agency (2005). SEA Good Practice Guidelines; and
- ODPM (2006). A Practical guide to the SEA Directive

### 1.4 Scope and structure of this report

This report comprises five sections, of which this introduction forms **Section One**.

The purpose of this report is to build on the content and findings of the **Scoping Report** and clearly express the manner in which the SMP is likely to affect the key environmental issues and associated receptors on the Suffolk coast.

The sections within this SEA environmental report are as follows:

**Section One** introduces this document and sets the context for the use of SEA within the SMP process. In addition, this section explains rationale behind the SMP itself and describes the potential implication of the SMP on the wider environment;

**Section Two** describes the context and methodology for the SEA, including prediction and evaluation methodology as well as data gaps and uncertainties;

**Section Three** describes the relevant environmental issues and presents the derived assessment criteria;

**Section Four** presents the assessment of the SMP at a management area level, at a plan level and draws conclusions relating to the overall effects of the plan;

**Section Five** provides an account of mitigation and monitoring measures required to address uncertainties or adverse effects of the SMP; and

**Appendix I** presents a detailed assessment of SMP Policy, in the form of Assessment tables.

## 1.5 Shoreline Management Plans (SMPs)

### 1.5.1 SMP aims and objectives

A Shoreline Management Plan (SMP) is a large-scale assessment of the risks associated with coastal processes and aims to reduce the risks to the social, economic, natural and historic environment. A SMP aims to manage risk by using a range of methods which reflect both national and local priorities, to (Defra, 2006):

- Reduce the threat of flooding and erosion to people and their property; and
- Benefit the environment, society and the economy as far as possible, in line with the Government's 'sustainable development principles'.

The first generation of SMPs were produced for the coastline of England and Wales in the late 1990s and were based on sediment cell boundaries which related to the movement of sand and shingle along the coast. The boundaries of these cells were originally set at locations where the net 'along shore' movement of sand and shingle changed direction. In some instances, the area covered by an SMP differed from these sediment cell boundaries, due to different requirements, such as the area covered by a coastal authority. However, for the SMP reviews a behavioural systems<sup>1</sup> approach was

<sup>1</sup> The current program of SMPs around the coast is a review of the first generation of reports produced in the 1990s and reflects the availability of new coastal processes information, new considerations (site designations etc) and reduced uncertainty about climate change.

recommended, leading to slightly different boundaries to the first generation (Defra, 2006).

The objectives of an SMP must be in line with the Government's strategy for managing risks from floods and coastal erosion and should (Defra, 2006):

- Set out the risks from flooding and erosion, to people and the developed, historic and natural environment within the SMP area;
- Identify opportunities to maintain and improve the environment by managing the risks from floods and coastal erosion;
- Identify the preferred policies for managing risks from floods and erosion over the next century;
- Identify the consequences of putting the preferred policies into practice;
- Set out procedures for monitoring how effective these policies are;
- Inform others so that future land use, planning and development of the shoreline takes account of the risks and the preferred policies;
- Discourage inappropriate development in areas where the flood and erosion risks are high; and
- Meet international and national nature conservation legislation and aim to achieve the biodiversity objectives.

The most appropriate option for shoreline management will depend on the section of coastline in question and on technical, environmental, social and economic circumstances. The four options considered for shoreline management in the second generation SMPs are presented in **Table 1.1**.

**Table 1.1 Options used in SMP development**

SMP option	Description of option
Hold the line (HtL)	Hold the existing defence line by maintaining or changing the standard of protection. This policy will cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on), to improve or maintain the standard of protection provided by the existing defence line. Included in this are other policies that involve operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.
Advance the line (AtL)	Advance the existing defence line by building new defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.
Managed realignment (MR)	Managed realignment by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
No active intervention (NAI)	No active intervention, where there is no investment in coastal defences or operations.

Within the development of an SMP, an epoch (time period) based approach is used for planning purposes, with the three epochs being 0 – 20 (2005 – 2025), 20 – 50 (2025 – 2055) and 50 – 100 (2055 – 2105) years hence.



## 1.5.2 Implications of SMP policy on the wider environment

Each of the SMP policies presented in **Table 1.1** has the potential to impact the wider environment in one or more ways. **Table 1.2** presents potential implications of each option.

**Table 1.2 Potential generic implications of each SMP option**

SMP option	Positive impacts	Negative impacts
Hold the line (HtL)	<ul style="list-style-type: none"> <li>• Protection of communities and infrastructure located within the coastal flood zone;</li> <li>• Protection of habitat landward of defences;</li> <li>• Protects freshwater resources (e.g. abstractions &amp; boreholes);</li> <li>• Provides stability to areas of coastline, within a wider management context;</li> <li>• Protects economic assets located behind defences; and</li> <li>• Provides protection to ecological, cultural and historic assets landward of the defences.</li> </ul>	<ul style="list-style-type: none"> <li>• Coastal squeeze (loss of habitat);</li> <li>• Interruption of coastal processes;</li> <li>• May increase flood and coastal erosion risk elsewhere;</li> <li>• Promotes unsustainable land use practices with the coastal flood zone;</li> <li>• Diverts limited resources away from an adaptation response to rising sea levels; and</li> <li>• Requires ongoing commitment to future investment in maintenance and improvement.</li> </ul>
Advance the line (AtL)	<ul style="list-style-type: none"> <li>• Provides additional space for communities;</li> <li>• Protection of communities and infrastructure located within the coastal flood zone;</li> <li>• Protection of habitat landward of defences;</li> <li>• Protects freshwater resources (e.g. abstractions &amp; boreholes);</li> <li>• Protects economic assets located behind defences; and</li> <li>• Provides protection to ecological, cultural and historic assets landward of the defences.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in extent of coastal habitat;</li> <li>• Change in functionality of habitat;</li> <li>• Increased coastal squeeze;</li> <li>• Interruption of coastal processes;</li> <li>• Effect on marine habitat; and</li> <li>• May increase rate of coastal erosion either side of the advanced line.</li> </ul>
Managed realignment (MR)	<ul style="list-style-type: none"> <li>• Coastal habitats allowed to move landwards under rising sea levels</li> <li>• Creation of habitat to aid UKBAP; (United Kingdom Biodiversity Action Plan) and local BAP (Biodiversity Action Plan) targets;</li> <li>• Habitat created for juvenile fish and other aquatic organisms (benefits to environment and fishing)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction in extent of habitat landwards of defences;</li> <li>• Change in nature of habitat to landward of defence;</li> <li>• Impact upon aquifers and abstractions;</li> <li>• Loss of communities or community assets; and</li> <li>• Loss of heritage and cultural features;</li> </ul>

SMP option	Positive impacts	Negative impacts
	communities); <ul style="list-style-type: none"> <li>• Reduces flood risk;</li> <li>• Promotes natural coastal processes;</li> <li>• Contributes towards a more natural management of the coast; and</li> <li>• Creation of high tide roosts and feeding areas.</li> </ul>	
No active intervention (NAI)	<ul style="list-style-type: none"> <li>• Coastal habitats allowed to move landwards under rising sea levels;</li> <li>• Promotes natural coastal processes; and</li> <li>• Contributes towards a more natural management of the coast.</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of certainty of effects and time for adaptation;</li> <li>• Increased risk of inundation to landward habitats under rising sea levels;</li> <li>• Impact upon aquifers and abstractions;</li> <li>• Loss of communities or community assets; and</li> <li>• Loss of heritage and cultural features.</li> </ul>

### 1.5.3 Implications of SMP policy on environmental receptors

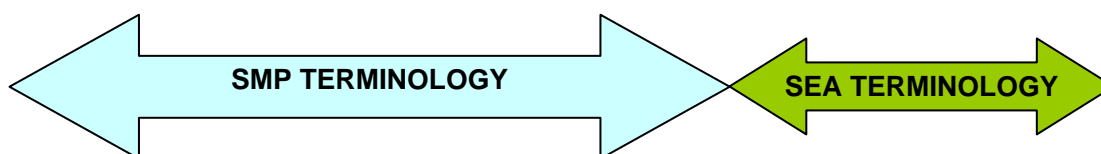
Defra SEA guidance (Defra, 2004) identifies a series of environmental receptors which should form the initial basis and scope of the SEA. The receptors are the environmental features which may be impacted by the effects of the SMP.

The SMP guidance requires that the SMP is developed in response to a consideration of the environmental features of the coast, features which need to be assessed to determine the nature and characterisation of the coast. There is a difference of language here between the building blocks of the SEA and the SMP. It is necessary therefore to clarify how SMP features relate to SMP receptors, and to then establish how the SMP may impact on the receptors. **Table 1.3** shows how SEA receptors relate to SMP terminology.

The SEA Regulations require that for each environmental receptor an initial appraisal is provided relating to how the SMP may impact each specific receptor. This is provided below in **Tables 1.4** and **1.5**. **Table 1.4** provides an account of the potential positive impacts on each receptor for each potential SMP policy. **Table 1.5** then outlines the potential negative effects. Some receptors developed for the Suffolk SMP SEA have been disaggregated from the SI1633 receptors due to the nature of the SMP process and its application across the coast; hence, 'biodiversity, fauna and flora' has been separated into two receptors, 'habitats' and 'species', as the assessment of impacts upon these receptors can be better quantified by this division.

**Table 1.3 SMP and SEA Terminology**

SMP Issues & Objectives	SMP Thematic Review	SEA Receptor
Environment	Natural environment	Habitats
		Species
		Air and water
	Agriculture	Soil
	Landscape and character	Landscape
		Material assets
Population		
Heritage	Historic environment	Cultural heritage
Commercial	Current and future land use	Population and communities
Recreation		Population and communities
Hard assets		Population and communities



Collectively, the impacts on receptors can then be traced back, to establish how the SMP may influence the issues and objectives of the themes within the SMP. This step provides clarity as to how the environment has been a consideration in SMP production and assessed in the context of the SEA.

The assessments in **Tables 1.4** and **1.5** provide an illustration that all SMP policy options have the potential to have an impact on all SEA receptors, with the exception of air and climate. Air and climate has been scoped out as a receptor potentially affected by the SMP, since no pathway was identified. SMP policy concerns itself with land, water and the tidal interface as a spatial area; no instances were identified where SMP policy could have any impact, positive or negative on air quality.

The identification of receptors which may be impacted by the SMP will provide the focus for the subsequent assessment.

Table 1.4 Potential positive effects of SMP policy on SEA Environmental Receptors

SMP OPTION	POSITIVE IMPACT	ENVIRONMENTAL RECEPTORS (BASED ON S1 1633)								
		AIR & CLIMATE	WATER	SOIL	LANDSCAPE	HISTORIC ENVIRONMENT	HABITATS	SPECIES	POPULATION AND COMMUNITIES	
<b>Hold the line (HTL)</b>	Protection of communities and infrastructure located within the coastal flood zone	<b>The SMP is not considered likely to have any effect on parameters for air quality.</b>	The protection of water abstraction sources	The protection of agricultural land	Protection of key features in the coastal landscape	Protection of key historic assets			Protection of key community assets	
	Protection of habitat landward of defences			The protection of soil as an integral element of habitat	Protection of key features in the coastal landscape		Protection of freshwater, saline or terrestrial habitat	Protection of freshwater, saline or terrestrial habitat		
	Protects freshwater resources (e.g. abstractions & boreholes)		The protection of water abstraction sources	The prevention of salinisation of soils						Protection of key community assets
	Provides stability to areas of coastline, within a wider management context				Provision of a natural and dynamic coastal landscape			Protection of freshwater, saline or terrestrial habitat	Protection of freshwater, saline or terrestrial habitat	Protection of key community assets
	Protects economic assets located behind defences					Protection of key historic assets				Protection of key community assets
	Provides protection to ecological, cultural and historic assets landward of the defences				Protection of key features in the coastal landscape	Protection of key historic assets	Protection of freshwater, saline or terrestrial habitat	Protection of freshwater, saline or terrestrial habitat		Protection of key community assets
<b>Advance the line (ATL)</b>	Provides additional space for communities				May provide for increased areas of agricultural land					Provides opportunity to increase area of land available for coastal communities
	Protection of communities and infrastructure located within the coastal flood zone				The protection of agricultural land	Protection of key features in the coastal landscape				Protection of key community assets
	Protection of habitat landward of defences				The protection of soil as an integral element of habitat			Protection of freshwater, saline or terrestrial habitat	Protection of freshwater, saline or terrestrial habitat	
	Protects freshwater resources (e.g. abstractions & boreholes)		The protection of water abstraction sources							Protection of key community assets
	Protects economic assets located behind defences				The protection of agricultural land		Protection of key historic assets			Protection of key community assets
	Provides protection to ecological, cultural and historic assets landward of the defences					Protection of key features in the coastal landscape	Protection of key historic assets	Protection of freshwater, saline or terrestrial habitat	Protection of freshwater, saline or terrestrial habitat	Protection of key community assets
<b>Managed realignment (MR)</b>	Coastal habitats allowed to move landwards under rising sea levels					Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Creation of habitat to aid UKBAP; (United Kingdom Biodiversity Action Plan) and local BAP (Biodiversity Action Plan) targets					Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Habitat created for juvenile fish and other aquatic organisms (benefits to							Provides for a dynamic transition of coastal	Provides for a dynamic transition of coastal habitat	Protects the viability of commercial and recreational

SMP OPTION	POSITIVE IMPACT	ENVIRONMENTAL RECEPTORS (BASED ON S1 1633)							
		AIR & CLIMATE	WATER	SOIL	LANDSCAPE	HISTORIC ENVIRONMENT	HABITATS	SPECIES	POPULATION AND COMMUNITIES
	environment and fishing communities)						habitat		fishing
	Reduces flood risk								Protection of key community assets
	Promotes natural coastal processes		May lead to enhanced water quality		Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Contributes towards a more natural management of the coast		May lead to enhanced water quality		Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Creation of high tide roosts and feeding areas				Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
No active intervention (NAI)	Coastal habitats allowed to move landwards under rising sea levels				Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Promotes natural coastal processes		May lead to enhanced water quality		Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	
	Contributes towards a more natural management of the coast				Provision of a natural and dynamic coastal landscape		Provides for a dynamic transition of coastal habitat	Provides for a dynamic transition of coastal habitat	

Table 1.5 Potential negative effects of SMP Policy on SEA Environmental Receptors

SMP OPTION	NEGATIVE IMPACT	ENVIRONMENTAL RECEPTORS (BASED ON SI 1633)							
		AIR & CLIMATE	WATER	SOIL	LANDSCAPE	HISTORIC ENVIRONMENT	HABITATS	SPECIES	POPULATION AND COMMUNITIES
Hold the line (HTL)	Coastal squeeze (loss of habitat)	The SMP is not considered likely to have any effect on parameters for air quality or climatic factors.			Loss of intertidal elements from the coastal landscape	Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Interruption of coastal processes		Adverse effects on water quality through turbidity changes etc.		Reduction in the dynamic quality of the coastal landscape		Shifts in habitat composition or function	Reduction in abundance and diversity of species	
	May increase flood and coastal erosion risk elsewhere			Potential degradation of soil quality through intrusion		Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Increased risk to existing community features
	Promotes unsustainable land use practices with the coastal flood zone								Impacts on sustainability of communities
	Diverts limited resources away from an adaptation response to rising sea levels					Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Effects on the resourcing of other community related activities
	Requires ongoing commitment to future investment in maintenance and improvement				Introduction of defence features into the area which detract from the coastal landscape	Need for expenditure on site investigation prior to loss through inundation			Potential impacts of expenditure on flood defence and the knock on effects of this to other areas of public and private expenditure
Advance the line (ATL)	Reduction in extent of coastal habitat				Loss of intertidal elements from the coastal landscape	Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Change in functionality of habitat						Shifts in habitat functionality	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Increased coastal squeeze				Loss of intertidal elements from the coastal landscape	Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Interruption of coastal processes		Adverse effects on water quality through turbidity changes etc.				Shifts in habitat functionality	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Effect on marine habitat						Loss of habitat and shifts in habitat composition	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	May increase rate of coastal erosion either side of the advanced line		Adverse effects on water quality through turbidity changes etc.	Potential degradation of soil quality through intrusion	Loss of intertidal elements from the coastal landscape	Loss of known or undiscovered archaeological resources	Loss of habitat and shifts in habitat composition	Reduction in abundance and diversity of species	Impacts on other features important for community purposes

SMP OPTION	NEGATIVE IMPACT	ENVIRONMENTAL RECEPTORS (BASED ON SI 1633)							
		AIR & CLIMATE	WATER	SOIL	LANDSCAPE	HISTORIC ENVIRONMENT	HABITATS	SPECIES	POPULATION AND COMMUNITIES
Managed realignment (MR)	Reduction in extent of habitat landwards of defences				Shifts in the habitat mosaic as a function of the local landscape	Loss of known or undiscovered archaeological resources	Loss of habitat	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Change in nature of habitat to landward of defence				Shifts in the habitat mosaic as a function of the local landscape		Loss of habitat and shifts in habitat composition	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Impact upon aquifers and abstractions		Loss of abstraction points and intrusion into aquifers						Impacts on water supply to communities
	Loss of communities or community assets		Loss of abstraction points and intrusion into aquifers	Potential degradation of soil quality through intrusion		Loss of heritage assets			Reduction in the amenity of coastal communities
	Loss of heritage and cultural features					Loss of heritage assets			Reduction in the amenity of coastal communities
	Loss of agricultural land			Loss of agricultural land/soil					Impacts on the character of local communities and the local economy
No active intervention (NAI)	Lack of certainty of effects and time for adaptation						Loss of habitat and shifts in habitat composition	Reduction in abundance and diversity of species	Provision of community features in unsustainable locations
	Increased risk of inundation to landward habitats under rising sea levels					Loss of known or undiscovered archaeological resources	Loss of habitat and shifts in habitat composition	Reduction in abundance and diversity of species	Loss of amenity from habitat and the function habitat provides to the community
	Impact upon aquifers and abstractions		Loss of abstraction points and intrusion into aquifers						Impacts on water supply to communities
	Loss of communities or community assets		Loss of abstraction points and intrusion into aquifers	Loss of agricultural land/soil		Loss of heritage assets			Reduction in the amenity of coastal communities
	Loss of heritage and cultural features					Loss of heritage assets			Reduction in the amenity of coastal communities

## 1.6 SMP Consultation

In addition to the consultation for the SEA, the Suffolk SMP has followed the consultation procedures specified in the SMP guidance.

## 1.7 SEA Scoping Report and the response to consultation

The SEA Scoping Report established the environmental baseline (including key environmental issues) and developed a suite of assessment criteria which have been used within this report for the assessment of SMP policy.

The Scoping Report was used as a basis for a four week consultation period (as agreed with National Environmental Assessment Service (NEAS)), between the 13<sup>th</sup> January and 10<sup>th</sup> February 2009, during which the consultees listed below were invited by the Environment Agency to provide comments on the environmental baseline and the assessment criteria.

### CONSULTEES FOR THE SEA SCOPING REPORT

- Environment Agency;
- Natural England;
- English Heritage;
- Suffolk Coastal District Council;
- Waveney District Council; and
- Suffolk Country Council.

As part of this consultation period, the consultees were requested to provide feedback on the following questions:

### QUESTIONS POSED IN THE CONSULTATION ON THE SEA SCOPING REPORT

1. Has the Scoping Report correctly identified the environmental issues on the Suffolk coast? (i.e. are there additional issues which need to be addressed?);
2. Has the baseline (in combination with the Theme Review and Characterisation report) provided an appropriate level of detail to support the assessment?
3. Do the assessment criteria provide an appropriate mechanism for the assessment of the environmental effects of the SMP? and
4. Is the suggested methodology considered robust and appropriate to the assessment of the environmental effect of the SMP?

Feedback was obtained from the Environment Agency and Natural England and an SEA Workshop was held on 22 January 2009 in the offices of Suffolk Coastal District Council in Woodbridge. The workshop was attended by representatives from the Environment Agency, Natural England, English Heritage, Suffolk Coastal District Council and Royal Haskoning. The feedback provided mirrored the comments previously received which focussed on ensuring that the acceptance criteria were more specific to:



- The range of designated sites and habitat under UK and environmental legislation (a detailed description is contained within the SMP HRA); and
- The range of heritage assets which should form the basis of any assessment.

In addition to this consultation, this assessment and process have been heavily shaped by the NEAS. The changes to the assessment criteria resulting from consultation have been included in this report and ensure that ecological and heritage based features are assessed in the appropriate manner to a consistent level of detail. In addition, the consultation process provided the opportunity to scope out certain SEA receptors which were deemed as not being pertinent to the assessment of SMP policy. The receptors defined in SI 1633, but scoped out of this assessment was therefore:

- Climatic factors and air.

These receptors were scoped out through consultation due to the intangible manner in which SMP policy (being abstract and aspirational) could be regarded as influencing these receptors.

## 1.8 Synergies with other parallel processes

The SEA will form a component of the wider assessment mechanisms for the SMP which also includes:

- The Habitats Regulations Assessment under the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora); and
- Consideration of the requirements of the Water Framework Directive (Council Directive 2000/60/EC establishing a framework for the Community action in the field of water policy).

As a component of the Environmental Report, monitoring measures will be specified post assessment. The actual specification of monitoring and the actions to enact the monitoring requirements will be included in the SMP Action Plan (discussed below).

## 1.9 Evaluation of the plan and alternatives

The function of a SMP is to consider the coast as a whole from the perspective of managing coastal flood and erosion risk. The behaviour of the Suffolk coastline is driven by its geological make-up and it is therefore evident that not one aspect of the coastal (in terms of its physical behaviour, natural or built) environment dominates. There is a complex interdependence between different values along this linear coast, which, put simply means that a decision taken within one SMP management area has the potential to affect multiple adjacent policy units.

As a result, if SMP policy at each management area was to be assessed individually and in-combination, then there would be a multiplier effect along the coastline such that each management unit would need to be assessed not only for the four options detailed above, but for each option in combination with one of four options for the two adjacent management units. This would result in each policy unit (of which there are 57) being assessed 64 times, resulting in a total of 3648 assessments. With respect to this, it was

therefore considered inappropriate and unmanageable for a simple and rigid procedure of policy appraisal to be applied to each SMP option. Further rationale for this decision was based upon the fact that in many management areas, only a limited number of policy options is actually appropriate; for example, a policy of managed realignment would be wholly inappropriate for a heavily populated conurbation, as would a policy of advance the line on a dynamic and natural shoreline. The effects of policy choice in one area are typically determined by others in the same management area and a more appropriate response to the consideration of alternative options is the use of baseline scenarios which form the basis of SMP development. In this respect, alternatives have been considered as options of a) no active Intervention and b) alternative management scenarios that were considered within the SMP as potential feasible options. In this respect the SEA will mirror and have direct regard to the real alternative within the context of the SMP.

## 2 CONTEXT AND METHODOLOGY

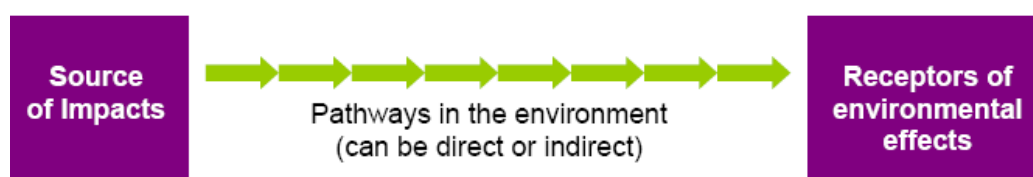
The SEA process is clearly defined in the SEA Regulations and guidance suite. The basic process follows the provision of a Scoping Report which included the environmental baseline, identified key environmental issues, outlined the methodology to be used and offered a series of assessment criteria.

Following consultation on the Scoping Report and the development and assessment of SMP policy, this Environment Report details and records the actual assessment of the preferred policy option. Subsequent to this, a **Post Adoption Statement** will be provided which will detail the manner in which the assessment will be used to ensure that the actual effects of the SMP are accounted for through monitoring and response.

### 2.1 Prediction and Evaluation Methodology

The methodology we use to identify and predict the likely significant environmental effects of implementing the plan is described below. To assess the environmental effects of implementing the SMP, we will adopt an evidence based, expert judgement system. This approach is based on the widely accepted Source-Pathway-Receptor model (SPR) (**Figure 2.1**).

**Figure 2.1 The Source-Pathway-Receptor model as applied to SEA**



The appraisal is a qualitative exercise based on professional judgement and supported by peer-reviewed literature where possible. It is important to stress that given the nature of SMP policy, which is high level and therefore lacks the detail of an actual scheme; the assessment will be based on established effects wherever possible but will also rely heavily on expert judgement of anticipated effects. The performance of each SMP management area or policy grouping against each assessment criteria will be given a significance classification in addition to a short descriptive summary (e.g. widespread negative effects with no uncertainty). For each SMP management area, the assessment table will also include a more comprehensive rationale of the judgement process used for determining the environmental effects and likely significance of each area. In particular, the following considerations will be paramount in determining environmental effects and likely significance:

- Value and sensitivity of the receptors;
- Is the effect permanent / temporary;
- Is the effect positive / negative;
- Is the effect probable / improbable;
- Is the effect frequent / rare;
- Is the effect direct / indirect; and
- Will there be secondary, cumulative and / or synergistic effects.

**Table 2.1 Environmental Impact Significance Categorisation**

Significance of SMP Policy	
	SMP policy is likely to result in a significant positive impact on the environment.
	SMP policy is likely to have a positive or minor positive impact on the environment (dependent on scheme specifics at implementation).
	SMP policy is likely to have a neutral or negligible effect on the environment.
	SMP policy is likely to have a negative or minor negative impact on the environment (dependent on scheme specifics at implementation).
	SMP policy is likely to have a significant negative impact on the environment.
	The relationship between the SMP policy and the environment is unknown or unquantifiable.
	The assessment criterion is not applicable to the SMP policy

This assessment is based on available information and has regard to the relatively abstract nature of SMP policy (in comparison to scheme level data). The receptors are specified in the SEA Practical Guidance (ODPM, 2006) and are listed in **Section 1.3**.

The use of appropriate receptors is considered in the development of assessment criteria (presented in **Appendix I**), whereby the manner in which each receptor (in response to the environmental issues of the Suffolk coast) is affected by the SMP is clearly described. Where gaps in knowledge exist (relating to the information required to support an assessment of the link between policy and receptor), expert judgement is used or a decision of unquantifiable effect is recorded.

## 2.2 Development of SEA assessment areas

The assessment is provided at the management area level. Management areas within the SMP are defined according to coastal processes and provide a series of policies for a spatial area. Management areas are the building blocks of the SMP and it is considered therefore that the SEA should provide an assessment at this level. The policies within a management area provide an integrated package to the issue affecting a particular area of coast and must be considered as the collective effects of policy within that management area. Changing one policy within the management area has the potential to affect other policies in that same area (such is the nature of integrated approaches to management at this level). It follows therefore that in assessing the effects of each management area, it is neither feasible nor prudent to consider all alternatives (from the four SMP policy options) for each policy choice.

The assessment is therefore based on a consideration of SMP policy at each management area, over the timescale of the SMP. A consideration of each alternative policy choice for each policy is not considered appropriate and would not contribute to an understanding of the actual options available, as discussed in **Section 1.8**.

## 2.3 Mitigation and monitoring

Any mitigation measures or monitoring which are required as a result of this assessment will be clearly specified and listed in this report and ultimately included in the SMP Action Plan. This approach provides the most robust mechanism for delivery, since the Action Plan is a) directly linked to SMP delivery and b) builds on the organisational roles developed within the SMP process.

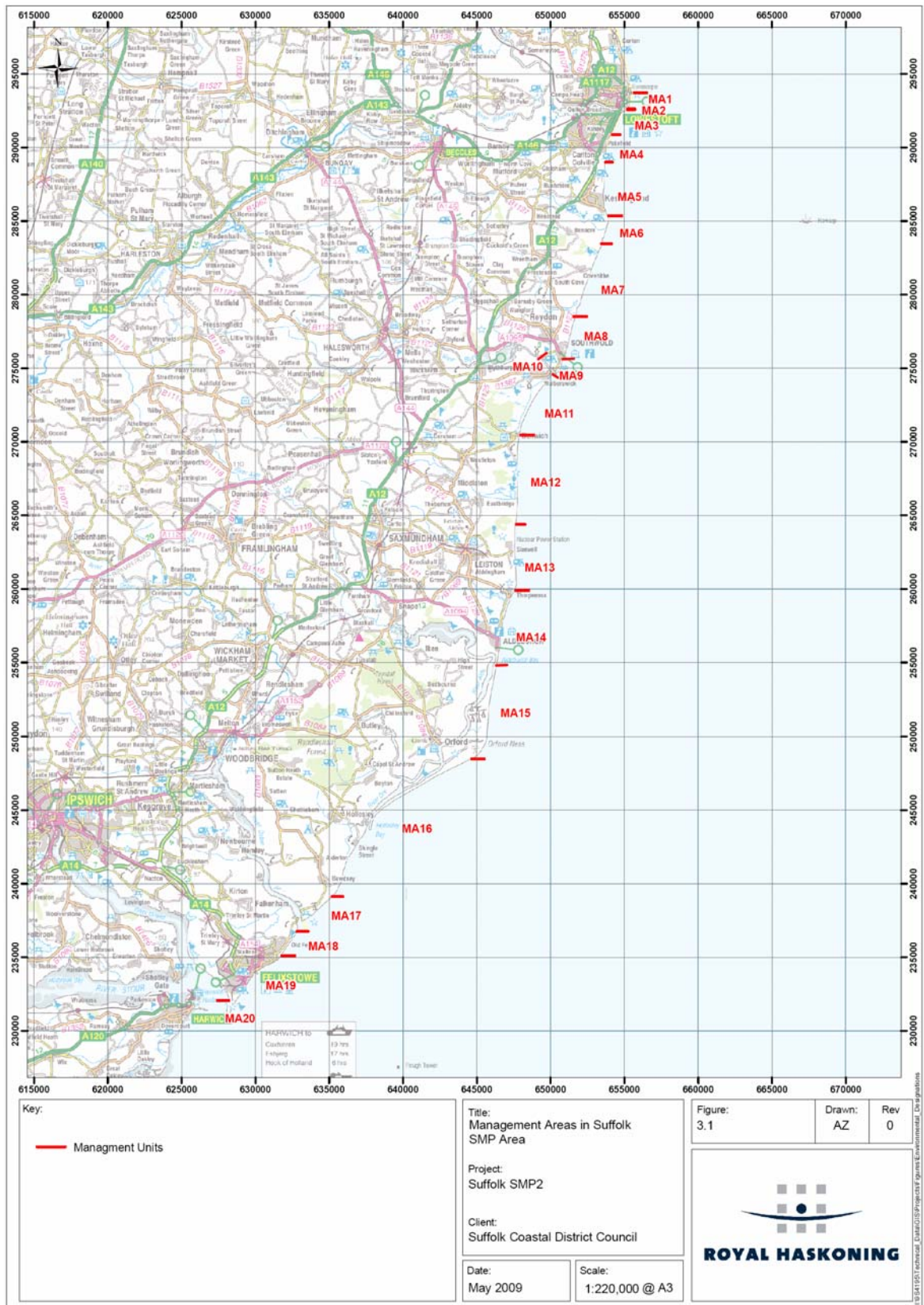


### 3 STUDY AREA & ISSUES

#### 3.1 Definition of study area and issues

The Suffolk Shoreline Management Plan (SMP) study area encompasses approximately 72 km of coastline, stretching from Lowestoft Ness (Ordnance Survey Grid Reference TM 555 936) to Felixstowe Landguard Point (Ordnance Survey Grid Reference TM 283 311) and is presented in **Figure 3.1**. A detailed social and environmental baseline is provided within the SEA **Scoping Report**, to which the reader should refer for more detailed information on the study area. A concise account of the baseline and the environmental issues identified on the Suffolk Coast is provided in **Section 3.2** and offers a reference point within this report to the factors which have shaped the form and content of the assessment.

The issues identified provide the focus for the provision and use of assessment criteria. Simply the assessment criteria have been produced in response to the environmental issues on the Suffolk Coast.



The suite of environmental issues identified on the Suffolk coast is provided as follows:

1. Threat to biodiversity on a dynamic coast;
2. Threat to the environmental conditions to support biodiversity and the quality of life;
3. Needs to maintain a balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths and the implications of sea level rise;
4. Protection of a sustainable water supply in the coastal zone;
5. Threats from development and coastal management on the coastal landscape and AONB;
6. Potential loss of historic and archaeological features on a dynamic coastline;
7. Threats to coastal communities and culture on a dynamic coastline;
8. Protection of coastal towns and settlements; and
9. Protection of key coastal infrastructure (roads, bridges etc).

### 3.2 Landscape

The Suffolk Coast and Heaths AONB was confirmed in March 1970, with the designated area covering a total of 403 km<sup>2</sup> (Suffolk Coasts and Heaths AONB, 2007). Stretching south from Lowestoft to the river Stour, the AONB protects heathland, reed beds, salt-marsh and mud-flats, a rich mixture of unique and vulnerable lowland landscapes, all of which are under pressure of change. The AONB is deeply indented by the estuaries of the Blyth, Alde, Deben, Orwell and Stour and bounded by the crumbling cliffs and tidal spits of the low and lonely North Sea coastline, the nearest unspoilt coast to Greater London. Parts of the coastline are recognised as historic landscapes by Suffolk County Council. The setting of these landscapes and the historic assets (e.g. listed buildings) within them has been considered throughout this assessment.

### 3.3 The Historic Environment

In Suffolk there are 325 Scheduled Monuments (SMs), of which 8 are cited by English Heritage (NDS, 2008) as being at high risk. Although protected by law, scheduled monuments are threatened by a wide range of human activities and natural processes. There are 28 SMs within the study area, of which only one, the Martello Tower at Bawdsey is listed by English Heritage as being at risk from coastal processes (NDS, 2008). The study area also comprises numerous listed buildings, historic parks and gardens, and a protected wreck site. Whilst designated historic assets provide an indication of the significance of historic environment along the coastline, many important archaeological features are not designated in the inter-tidal zone due to the dynamic setting. The Suffolk coastline has a long history of change which has left a large number of archaeological features, some most notably resulting from the rapid changes in the coastline. For example Dunwich, which was once a thriving seaport (one of the largest in Eastern England), was dramatically changed by large storms in the 13<sup>th</sup> and 14<sup>th</sup> century and subsequent coastal erosion leading to the loss of much of the town to the sea. Most of the original buildings in Dunwich have now disappeared including all eight churches. Given the history of the area there is likely to be unknown archaeological sites along this stretch of coastline. The historic village of Covehithe has also suffered a similar loss due to coastal erosion (the coastline at this location has retreated more than 500 metres



between the 1830s and 2001) and is at risk of completely disappearing in the future. The historic environment features pertinent to this assessment are shown in **Figure 3.2** to **Figure 3.6**.











### 3.4 Habitats & species

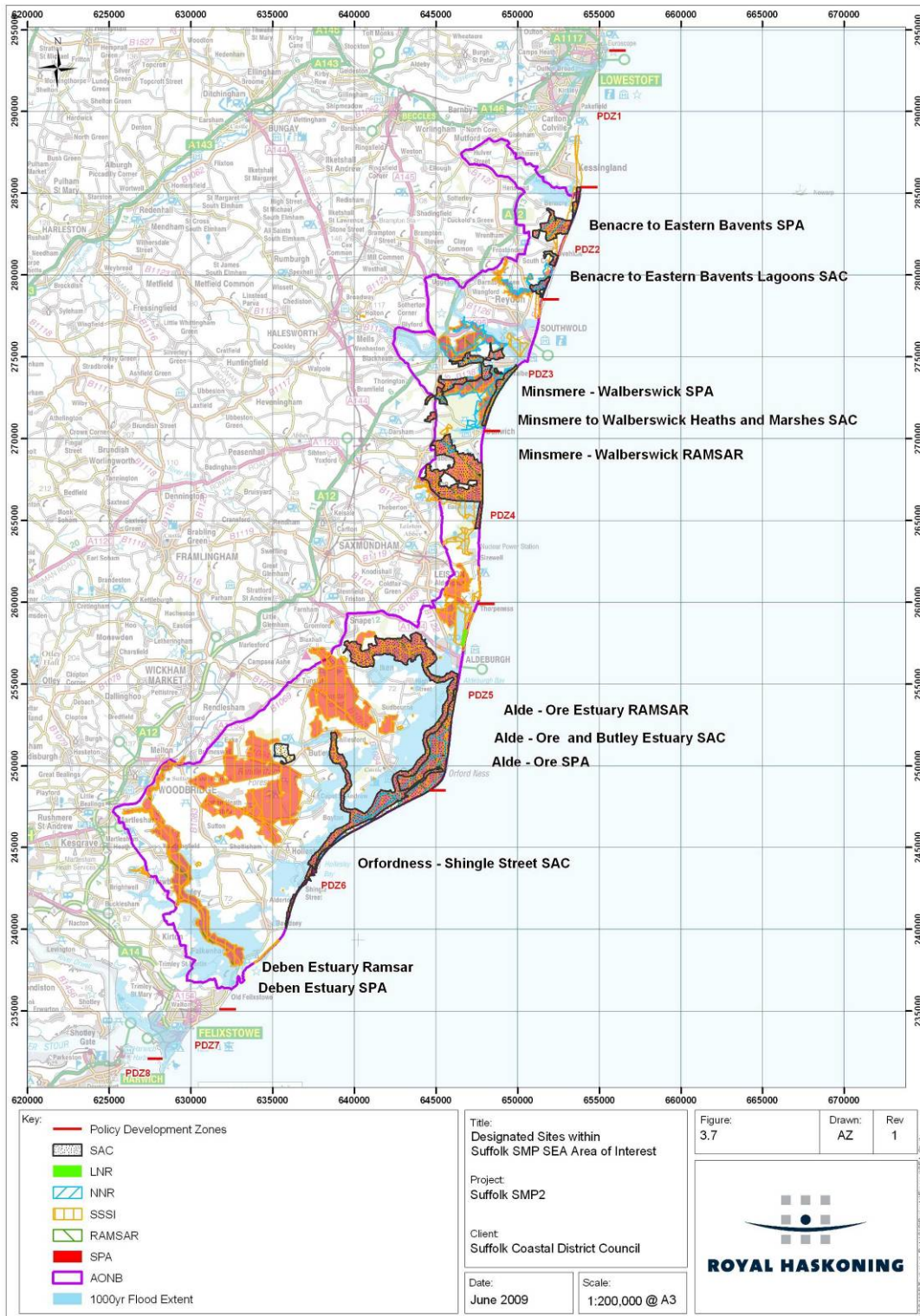
#### 3.4.1 Statutory International Designations

Nature conservation designations seek to conserve areas of conservation importance and the habitats and species which are the basis of their statutory designation. However, as the designations are derived from discrete and different pieces of legislation, each therefore varies in the nature and mechanisms of their protection. The inherently dynamic nature of coastal environments and the potential of flood risk management structures and practices to both constrain (e.g. by holding or advancing the line) and create (e.g. from no active intervention or managed realignment) habitat ensures that SMP policy has a highly significant bearing on both natural habitats and designated sites. All Internationally designated sites within the study area (either coastal or within the 1 in 1000<sup>2</sup> year coastal flood zone) are presented in **Table 3.1**.

**Table 3.1 Internationally designated sites within or adjacent to the study area**

International site type	Legislation site designated under	Site name	Area (ha)
Ramsar	Ramsar Convention	Alde-Ore Estuary	2534
		Broadland	5510
		Deben Estuary	981
		Minsmere-Walberswick	2009
		Stour and Orwell Estuaries	3673
Special Area of Conservation (SAC)	Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the Habitats Directive)	Alde-Ore and Butley Estuary	1633
		Benacre to Easton Bavents Lagoons	327
		The Broads	5887
		Minsmere to Walberswick Heaths and Marshes	1257
		Orfordness – Shingle Street	888
Special Protection Area (SPA)	Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive)	Alde-Ore	2404
		Benacre to Eastern Bavents	471
		Broadland	5506
		Deben Estuary	981
		Minsmere-Walberswick	2020
		Sandlings	3406
		The Stour and Orwell	3673

<sup>2</sup> The 1 in 1000 year flood zone indicates that any land within this zone has a 0.1% probability of tidal inundation per annum.





### 3.4.2 Statutory National Designations

The Suffolk coastline also contains several sites designated under national legislation, with these being presented in **Table 3.2**.

**Table 3.2 Sites designated under national conservation legislation on the Suffolk coast**

<b>SSSI name</b>	<b>Area (ha)</b>
Alde-Ore Estuary	2,554.3
Barnby Broad and Marshes	189.6
Bawdsey Cliff	23.3
Corton Cliffs	6.5
Crag Pit, Aldeburgh	0.8
Deben Estuary	976
Gedgrave Hall Pit	0.6
Gromford Meadow	1.6
Landguard Common	31.4
Leiston-Aldeburgh	534.3
Minsmere-Walberswick Heaths and Marshes	2325.9
Orwell Estuary	1336.6
Pakefield to Eastern Bawdsey	735.3
Red House Farm Pit, Sudbourne	0.5
Sandlings Forest	2473.9
Sizewell Marshes	104.3
Sprats Water and Marshes, Carlton Colville	55.5
Stour Estuary	2252.6
Valley Farm Pit, Sudbourne	0.5
<b>NNR name</b>	<b>Area (ha)</b>
Benacre	393
Orfordness-Havergate	909
Suffolk Coast	1340

### 3.5 Key tourism features

Key tourism features within the Suffolk SMP SEA study area are listed in **Table 3.3**.

**Table 3.3 Key tourism features along the Suffolk coast and within SEA study area**

Location	Attraction
Aldeburgh	Aldeburgh is a charming, traditional seaside town, possessing many independent shops. The fishermen still draw their boats up onto the shore and sell fish directly from the beach. The town also hosts an annual, world-famous music festival.
Dunwich village, beach and Natural Trust area.	Once a large medieval town, the majority of which has subsequently been lost to coastal erosion. Dunwich beach is a popular tourist attraction, as is the National Trust land, a mixture of coastal lowland heath, sandy cliffs and beach,
Felixstowe sea front	A redeveloped sea front with an Edwardian nature, offering visitors a mixture of retail, café culture and outdoor lifestyle.
Kessingland	A former fishing village, which now owes much of its popularity to the tourist industry.
Lowestoft	Lowestoft is at the heart of The Sunrise Coast and is famous for its two award-winning, Blue Flag beaches and rich maritime connections.
Minsmere RSPB reserve	RSPB reserve best known for its wetland breeding birds, which forms part of the Minsmere – Walberswick SPA.
Orfordness	Orford Ness is owned by the National Trust and forms part of Orford Ness National Nature Reserve, though access is strictly controlled to protect the fragile habitats and due to a residual danger to the public from the site's former use by the military.
Orford village	Orford is a small coastal community which has grown significantly in the last 20 years and which possesses a flourishing sailing club.
Sizewell	The village attracts a significant number of tourists and the shingle beach is accessible along the whole zone.
Snape Maltings	A set of 19 <sup>th</sup> century buildings on the banks of the River Ore, which have been converted into shops, galleries and a concert hall.
Southwold	Important tourist destination in Suffolk, both as a destination and as a hub for visitors to the countryside and villages in central Suffolk. The harbour serves both fishing and small pleasure boats and along with Southwold Pier is an integral tourist attraction. A foot ferry still runs between Southwold and Walberswick, which is mainly a tourist attraction. The town also possesses a blue flag beach. Southwold also possesses the world famous Adnam's brewery and an Amber Museum.
Thorpeness	Originally a small fishing hamlet until it was bought by a Scottish barrister in 1910, who developed Thorpeness into a private fantasy holiday village.
Walberswick	Once a thriving port, nowadays the village is a bustling tourist attraction.
Woodbridge	Numerous boat related businesses, including a marina.

### 3.6 Critical Infrastructure

Critical infrastructure within the Suffolk SMP SEA study area is presented in **Table 3.4**. Many of the larger coastal settlements are served by a network of “B” class roads, with much of the remaining road network being single-track roads. In addition to this, the Sizewell Nuclear Power Station is located on the coast adjacent to Sizewell and partially within the 1 in 1000 flood zone.

**Table 3.4 Critical transport infrastructure within the Suffolk SMP SEA study area**

<b>Critical Infrastructure</b>	<b>Description</b>
A12	Provides the main route from North to South through the district (this is only dual carriageway for a small percentage of its length) and connects many rural areas with the primary route network.
Rail services between Ipswich and Lowestoft (The East Suffolk Rail Line)	Provide Woodbridge, Saxmundham and a number of smaller settlements with direct rail access (stations at Westerfield, Woodbridge, Melton, Wickham Market (sited at Campsea Ash), Saxmundham and Darsham.
Felixstowe Port	The largest container port in the UK and 5 <sup>th</sup> largest in Europe, employs over 2,700 people. While not within the SMP study area directly, the port is recognised as a strategic employment site of regional and national importance and has major regional
Lowestoft Port	The Port of Lowestoft is Britain's most easterly port and serves as a major centre for servicing the offshore oil and gas industry, as well as the construction and shipment of wind energy turbines.
Sizewell A & B nuclear power station, Sizewell C planned	Nuclear power station providing power to the UK national grid.
Electricity transmission infrastructure – high tension power lines	High-tension power lines run south-west from Sizewell passing south of Leiston and onwards to Ipswich. These are the only high-tension lines within the SMP study area. Transmission cables from the proposed Greater Gabbard offshore wind farm will come ashore just south of Sizewell power station.

### 3.7 Coastal communities

Several communities are located along the Suffolk coastline, with SMP policy having the potential to impact these areas. Due to the inherent nature of the Suffolk coast, many of these communities are located within the 1 in 1000 flood zone and therefore are at risk of coastal inundation or coastal erosion. Areas likely to be subject to erosion will be defined in the various scenarios within the SMP. The risk to settlements is considered in the wider context, so the loss due to flooding of key areas or assets of a settlement would clearly have an effect on population located outside the floodplain, but within the band of coastal settlements. The communities located along the Suffolk coast and within the 1 in 1000 flood zone are listed in **Table 3.5**.

**Table 3.5 Coastal communities along the Suffolk coastline and within the 1 in 1000 flood zone**

Coastal Community	District Council
Lowestoft	Waveney
Oulton Broad	Waveney
Kirkley	Waveney
Pakefield	Waveney
Kessingland	Waveney
Reydon	Waveney
Southwold	Waveney
Wangford	Waveney
Blythburgh	Suffolk Coastal
Walberswick	Suffolk Coastal
Dunwich	Suffolk Coastal
Eastbridge	Suffolk Coastal
Sizewell	Suffolk Coastal
Thorpeness	Suffolk Coastal
Aldeburgh	Suffolk Coastal
Iken	Suffolk Coastal
Orford	Suffolk Coastal
Chillesford	Suffolk Coastal
Butley	Suffolk Coastal
Boyton	Suffolk Coastal
Hollesley	Suffolk Coastal
Shingle Street	Suffolk Coastal
Alderton	Suffolk Coastal
Bawdsey	Suffolk Coastal
Capel St Andrew	Suffolk Coastal
Old Felixstowe	Suffolk Coastal
Felixstowe	Suffolk Coastal

### 3.8 Water quality and supply

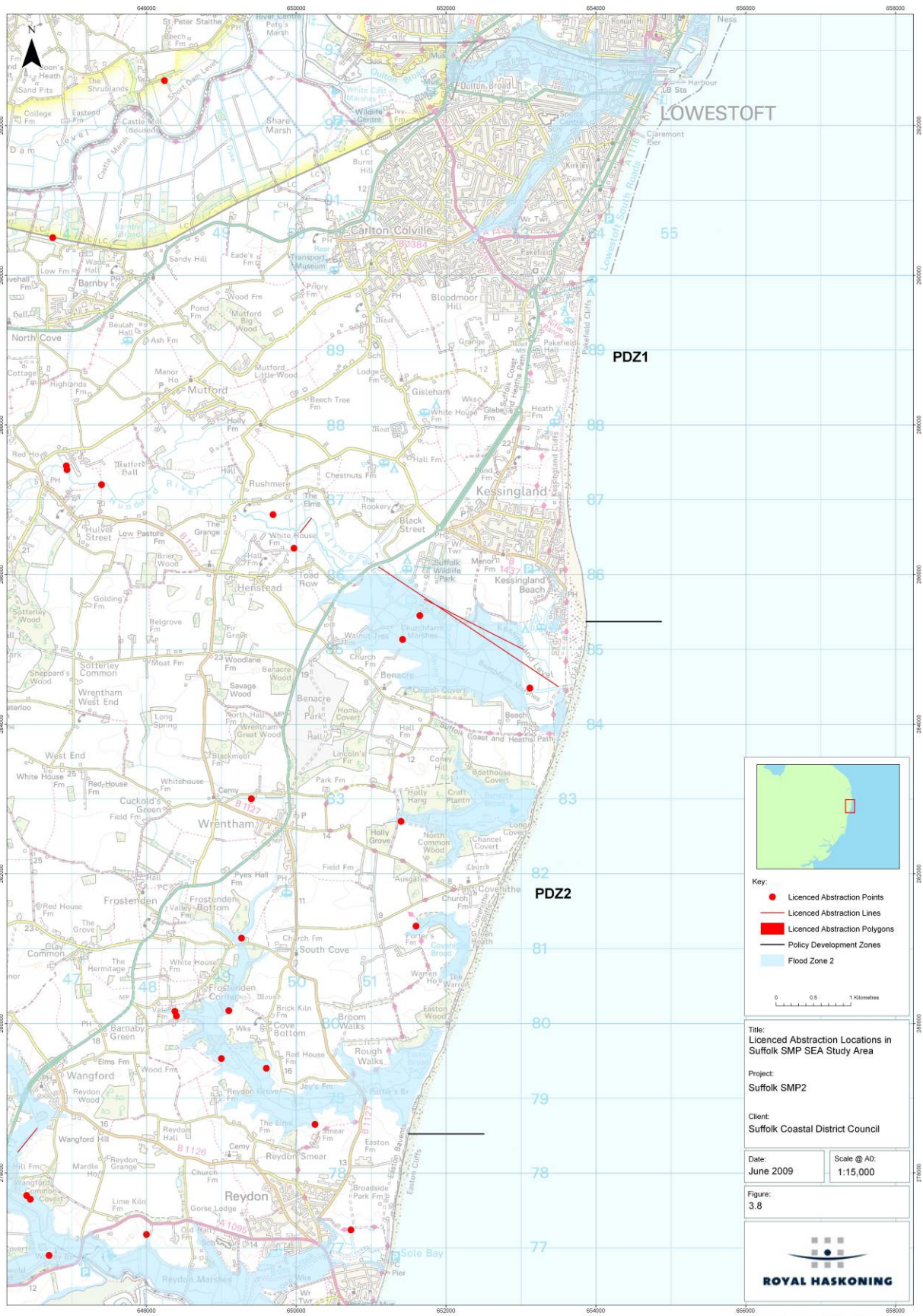
#### 3.8.1 Hydrology & water resources

The river catchments within the East Suffolk CAMS comprise of the Rivers Lothingland Hundred, Wang, Blyth, Yox, Thorpeness Hundred, Fromus, Alde, Ore, Deben, Mill, Flynn / Lark, Gipping and Belstead Brook. The coastal crags included within the East Suffolk CAMS are the coastal crag of the Blyth Estuary, northern coastal crag and the coastal crags associated with the Rivers Alde/Ore and Deben, and Felixstowe Peninsula. The confined chalk is also included in the East Suffolk CAMS. The catchments within Suffolk are a critical element in determining the physical form and evolution of the coast.

The Suffolk area also contains groundwater Chalk, Crag and Drift aquifers. Chalk is the largest aquifer type in East Suffolk and is primarily used for public water supply and spray irrigation. The chalk is overlain by Crag, with in turn is covered by sands and gravels of varying thickness, these are locally important minor aquifers.

**Table 3.6 CAMS status of Suffolk watercourses**

<b>CAMS watercourse</b>	<b>CAM aim</b>
WRMU 1 (Lothingland Hundred)	Currently water available, moving to no water available
WRMU 2 (River Wang and Coastal Crag of Blyth Estuary)	No water available
WRMU 3 (River Blyth)	Currently water available, moving to no water available
WRMU 4 (River Yox)	No water available
WRMU 5 (Thorpeness Hundred)	Over-abstracted
WRMU 6 (Rivers Fromus and Alde)	Currently, no water available in the River Fromus and the River Alde is over-licensed, both moving to over-licensed
WRMU 7 (River Ore)	Currently over-abstracted, moving to over-licensed
WRMU 8 (Northern Coastal Crag)	Over-licensed
WRMU 9 (Coastal Crag associated with the Rivers Alde/Ore and Deben)	Over-abstracted
WRMU 10 (River Deben)	Currently no water available in the Upper River Deben and over-licensed in the Lower river, both moving to no water available
WRMU 11 (Mill River)	Over-licensed
WRMU 12 (Rivers Flynn and Lark)	No water available
WRMU 13 (River Gipping)	Currently no water available in the Upper River Gipping and over-licensed in the Lower river, both moving to over-licensed
WRMU 14 (Coastal Crag associated with the Felixstowe Peninsula)	Over-licensed
WRMU 15 (Belstead Brook)	Currently water available, moving to no water available
WRMU 16 (Confined Chalk)	Over-abstracted













## 4 ENVIRONMENTAL ISSUES AND ASSESSMENT CRITERIA

In this section the environmental issues for the Suffolk coast are identified and a series of corresponding assessment criteria provided which will form the basis of the assessment of SMP policy.

### 4.1 Environmental issues

From a consideration of the policy, legislation and designations relevant to the Suffolk coast and supported by discussions with key stakeholders as part of the SMP process, a series of environmental issues have been identified. These issues are an expression of the problems which the SMP needs to address in providing policies for shoreline management. The issues suite has been developed to avoid a reliance on generic coastal management issues (although some issues are the same around the coast and are therefore included) and has provided an account of what other plans, management obligations and stakeholders consider to be the most critical environmental issues on the Suffolk coast.

**The suite of issues provided is as follows:**

1. **Need to maintain a balance of providing navigation and access to channels behind barrier islands whilst recognising their value to local communities.**
2. **Threats from inappropriate coastal management to coastal communities, traditional activities and culture.**
3. **Protection of coastal towns and settlements and the maintenance of features which support tourism and local commerce.**
4. **Threats from inappropriate coastal management on the coastal landscape and AONB with regard to the provision of a mosaic of landscape features which is characteristic of the Suffolk coast.**
5. **Potential loss of historic and archaeological features on a dynamic coastline.**
6. **Threat to biodiversity on a dynamic coast and the interactions between various coastal habitat types.**
7. **Threat to the environmental conditions to support biodiversity and the quality of life.**
8. **Continuation of coastal processes required to maintain the integrity of critical coastal habitat and species.**

In response to each specific issue a series of **assessment criteria** have been developed, which will ensure that the assessment of SMP policy is focussed on the key environmental issues in this area.

## 5 ASSESSMENT

### 5.1 Assessment methodology

The assessment is provided at two levels:

- 1) Primary analysis of each management area (detailed assessment); and
- 2) Secondary analysis which seeks to establish the overall effects of all management areas (the plan as a whole).

The primary analysis has been recorded on a series of detailed tables, which fully document the effect of each management area in regard to the assessment criteria, with a full record of the primary assessment being provided in **Appendix I**. An additional assessment is also provided in the following section in regard to how specific management areas have succeeded in compliance with the assessment criteria. Management areas which have recorded numerous negative decisions (in regard to the assessment criteria) will be discussed on an individual basis, while those which have limited numbers of negative decisions will be discussed under the secondary analysis where the collective effects of the plan are considered. In the interests of clarity and on a precautionary basis, any area which has recorded a negative score in response to four or more issues will be discussed individually below. At this stage a commentary will be made in regard to the alternatives which are available within the area.

As described previously, due to the nature of SMP policy, a consideration of each of the four available SMP policy options, for each policy area is not appropriate. The effects of policy choice in one area are typically determined by others in the same management area. A more appropriate response to the consideration of alternative options is the use of baseline scenarios which form the basis of SMP development. In this respect, alternatives will be considered in the narrative below as options of a) no active Intervention and b) alternative management scenarios that were considered within the SMP as potential feasible options. In this respect the SEA will mirror and have direct regard to the real alternative within the context of the SMP.

The secondary assessments seeks to identify the manner in which the effects of the plan as a whole manifest themselves (against the assessment criteria) and provides an account of the overall effects of the plan coupled with mitigation measures for areas where the plan has an adverse effect on key issues on the Suffolk coast. **Appendix I** therefore provides the detail, which supports the assessment and conclusions described below.

**Table 5.1** provides a summary of the assessment tables provided in **Appendix I**.

### 5.2 Consideration of policy – the level at which the assessment has been provided

The development of policy within this SMP has been devised in response to a consideration of the environmental, social and economic features on the coast and of the coastal processes and systems which shape the coast. The policy is framed in Management Areas of which there are 19 in the SMP. Management Areas have been defined to offer the most appropriate spatial breakdown of the coast, where processes can be managed (as appropriate) at a scale which is driven by wider management

objectives. Within each Management Area, Policy Units provide the actual areas at which policy is specified. Policy Units provide the building blocks for Management Areas, which define the approaches to how areas of the coast will be managed.

For a full description of the policies, refer to the main SMP document.

Table 5.1 Summary of SEA assessment tables provided in Appendix I

ASSESSMENT CRITERIA	SMP MANAGEMENT AREA														
	LOW 1.1-4	KES 05.1-3	BEN 06.1-3	COV 07.1-2	SWD 08.1-3	BLY 09.1-5	BLY 10.1-3	DUN 11.1-4	MIN 12.1-4	MIN 13.1-3	ALB 14.1-4	ORF 15.1-2	HOL 16.1-5	DEB 17.1-4	DEB 18.1-2, FEL 19.1-5, 20.0-1
<b>ISSUE - Maintenance and enhancement of biodiversity on a dynamic coastline</b>															
Will SMP policy provide a sustainable approach to habitat management?															
Will SMP policy have an adverse effect on the integrity of any international sites?															
Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?															
Has SMP policy provided sustainable management for emerging saline lagoon habitat?															
Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?															
Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?															
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>															
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>															
Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?															
Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?															
Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?															
Does the policy work with or against natural processes?															
<b>ISSUE - Maintenance of water supply in the coastal zone</b>															
Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?															
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>															
Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?															
Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?															
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>															
Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?															
Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?															

ASSESSMENT CRITERIA	SMP MANAGEMENT AREA														
	LOW 1.1-4	KES 05.1-3	BEN 06.1-3	COV 07.1-2	SWD 08.1-3	BLY 09.1-5	BLY 10.1-3	DUN 11.1-4	MIN 12.1-4	MIN 13.1-3	ALB 14.1-4	ORF 15.1-2	HOL 16.1-5	DEB 17.1-4	DEB 18.1-2, FEL 19.1-5, 20.0-1
<b>ISSUE - Protection of coastal communities and culture</b>															
<i>Protection of coastal towns and settlements</i>															
Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?															
Will SMP policy protect the 'coastal character' of communities which have historically been undefended?															
Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?															
<i>Protection of key coastal infrastructure</i>															
Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?															
Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?															
Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?															
Will SMP policy protect in situ, Sizewell Nuclear power station?															

### 5.3 Primary Analysis: a detailed assessment of management areas which have been identified as having a range of negative effects on receptors.

The overriding theme to have emerged from this assessment is that most management areas have either a neutral or minor positive effect when assessed against the developed SEA assessment criteria. This is welcome confirmation that adherence to the SMP guidance (which is intended to develop policy in response to environmental considerations) has ensured that policy development has been driven by and is responsive to the identified socio-economic and environmental issues on the Suffolk coast.

Management areas which have been determined as having a negative effect in regard to four or more assessment criteria are addressed in **Sections 4.2.1 – 4.2.4**.

#### 5.3.1 KES 5.1 – 3

The primary intent of SMP policy in this management area is to provide protection for one of the larger settlements in the plan area, Kessingland. As such, this area is one of the fixed holding points on an otherwise dynamic coastline. This management area scored a minor negative with respect to:

1. Loss of UKBAP habitat;
2. Effects on SSSIs;
3. Provision of balance across the area whilst accepting natural change; and
4. The commitment to spend more on future defences.

The policies in this management area, through policies of HTL at Kessingland and NAI to the north, seek to address the balance of maintaining an established community, whilst allowing the natural evolution of the open coast. This has the effect of restricting natural coastal evolution adjacent to the town, whilst allowing natural coastal evolution on the open coast. Policy in this management area has the potential to lead to the loss (through coastal squeeze) of the dune and shingle habitat which lies forward and adjacent to the defence line. The loss of habitat is the rationale behind the negative effects for points 1 and 2 above, while the limiting of natural change (by the provision of hard defences across the plan period) is responsible for point 3.

SMP policy in this management area (by providing a HTL policy) will commit future generations to spending on coastal defence structures (point 4 above). However, this is considered essential due to the size and nature of Kessingland. Where settlements need to be maintained *in situ*, a defence cost cannot be avoided where erosion would otherwise occur.

Given the need to defend Kessingland while allowing natural coastal evolution elsewhere, SMP policy within this management area can be regarded as the most beneficial option when appraised against the assessment criteria. Measures to address the effects on BAP habitat and on the adjacent SSSIs will need to be addressed in the SMP Action Plan.



#### Alternative options for this management area

The alternative options considered had regard to the importance of protecting an existing town and as such no scenarios were considered which allowed for the loss of Kessingland. Equally, a policy of HTL on the open coast would bring no benefit to other coastal issues but would exacerbate the squeeze issues affecting habitat.

#### 5.3.2 MIN 12.1 – 4

The intent of SMP policy in this management area is to allow the natural evolution of an open area of coastline. An element of providing management which enables the coast to evolve naturally is the need for policy which allows the coast to breach previously defended areas. This is the case in this management area, where control of the existing sluice will be central to allowing managed realignment of the central sections of the management area. The main result of this realignment is expected to be the loss of access along a coastal access route as well as the eventual loss of the chapel at Leiston Abbey, a SAM. SMP policy on this management area has therefore scored minor negative in regards to:

1. Loss of features considered important within the landscape;
2. Loss of transport routes;
3. Loss of coastal access; and
4. Loss of heritage assets.

However, despite these losses, the realignment will promote a more natural evolution of the coast, which will contribute to the coastal landscape and overall sustainability of the coast. The loss of the road and coastal access is considered easily remedied at the scheme stage and with time being allowed for adaptation, no major irreparable loss of access is expected in this area. However, the loss of the SAM cannot be offset by ancillary measures.

SMP policy in this management area will provide a considered shift towards a more natural coastline, providing greater sustainability of coastal management options and the enhancement of natural environmental values.

#### Alternative options for this management area

The alternative management option in this area would be HTL, which would require the ongoing maintenance of defence for the sluice. This is not considered sustainable in the long term and would have serious effects on the intent to maintain natural coastal evolution on open coast. Holding the line in this area is also likely to have adverse effects on the ecological values of the coast through preventing the evolution of habitats and potential acute loss of freshwater habitat through unmanaged sudden breach of the ridge.

#### 5.3.3 ALB 14.1 – 4

The management intent in this area is similar to MIN 12.1 – 4 and would allow an open area of coast to evolve naturally, with an element of managed realignment. The critical element in this area is Policy 14.4 and the intent to HTL at Slaughden. The coast covered by management area 14.4 is a narrow shingle ridge, which maintains the

integrity of the wider Alde-Ore estuary. Any breach of the ridge in this area could lead to major changes in the estuary, via the creation of a new or secondary estuary mouth. The policy seeks to HTL in this location, until wider estuary management is determined. In this case the effects of policy relate to:

1. The need for sustainable approaches to habitat management;
2. Provision of balance across the area whilst accepting natural change;
3. The commitment to spend more on future defences; and
4. The intent to work with natural processes.

SMP policy at management area 14.4 therefore seeks to HTL at Slaughden, which has a range of minor negative effects on the environment in this area. HTL on this section of coast is contrary to the intent to avoid unsustainable management and allow natural change, while committing future generations to expenditure on coastal defences. SMP policy in this management area prevents the natural evolution of the coast and the estuary behind it and therefore has been assessed as having a minor negative effect on identified issues 1 to 4 above. However, these impacts require qualification; a breach in this area of coast has the potential to lead to acute and sudden rapid changes in tidal regime and habitat in the estuary. A considered approach to estuary management is required, with the forthcoming estuary strategy seeking to provide this. In the interim period, prior to the provision of the estuary strategy, these minor effects will be evident.

#### Alternative management options for this management area

An alternative approach would be to implement a NAI policy at Slaughden, which would allow a breach at Slaughden neck. This would have major negative effects on the environment within the estuary, with rapid changes in both the form and function of the estuary and concomitant impacts on habitats, species, communities and the coastal landscape. On balance, the HTL policy proposed by the SMP remains the most beneficial option in this area, from both a socio-economic and environment viewpoint.

#### 5.3.4 HOL 16.1 – 5

This suite of policies covers the most complex area of the SMP – the estuarine and shingle based habitat at the mouth of the Alde-Ore estuary, which stretches down to East Lane. The actual intent of SMP policy in this management area is simple – to provide relative stability to the estuary mouth and the settlement at Shingle Street whilst allowing the development of a natural balance of dynamic and static behaviour of sediment (primarily shingle). Policy 16.5 provides a continuation of the existing policy at East Lane. The intent of HTL on this frontage is to prevent rapid erosion at this point, which has the potential to destabilise the system to the north. Maintaining a headland at East Lane is a means of providing a barrier to the loss of sediment from this system and subsequent erosion of the frontage at Shingle Street (which is a historic settlement and community).

HTL at East Lane does however have impacts on the receptors relating to both the natural and historic environment. The East Lane policy has a minor adverse effect on issues 1, 2, and 4 – 6 identified below, as well as having a significant adverse effect on issue 3. The minor adverse effects relate to the potential for SSSI habitat to be lost to the north of East Lane within the Alde-Ore Estuary SSSI, through coastal squeeze and

also a prevention of the natural evolution of the coast which will require an ongoing commitment to management. In regard to point 3, this is regarded as interrupting the natural evolution of the coast to the extent that the effect is considered significant.

1. The need for sustainable approaches to habitat management;
2. Effects on SSSIs;
3. Provision of balance across the area whilst accepting natural change;
4. The commitment to spend more on future defences;
5. The intent to work with natural processes; and
6. The intent to maintain coastal settlements in a sustainable manner.

The reasons for the pursuit of the East Lane policy, and other policy in this area however, seek to address other environmental criteria. The management of this system is intended (in the wider context) to:

- Maintain a balance of dynamic and static shingle (important habitat under the Birds and Habitats Directives);
- Maintain the historic assets at Shingle Street;
- Protect a large swathe of agricultural land to the north of East Lane; and
- Maintain the integrity of the estuary mouth.

In providing these positive benefits however, due to the complex nature of this system, the adverse effects listed above are unavoidable. It is considered that on balance the preferred policy options in this area provide the most balanced socio-economic and environmental outcomes. However, due to the complexity and unpredictability of this system, the SMP has recommended that a monitoring and response programme is produced for this section of coastline. The study will have regard to the manner in which the coast responds to this policy suite, and will provide:

- A. Alternative courses of management if sudden adverse effects arise; or
- B. Inform future management decisions in subsequent SMPs.

This approach is considered the most prudent manner in which to manage this particular area of coast.

#### Alternative management options for this management area

Due to the fact that the preferred policies within this management area score a major positive with regards to coastal processes, an assessment of alternative options was undertaken. As the HTL policy at East Lane was the primary reason for SMP policy in this management area scoring a major negative, management area 16.5 (East Lane) was reassessed against the SMP management options, with the rationale shown in **Table 5.2** being used to decide which options were taken forward.

**Table 5.2 Assessment of alternative options for management area HOL 16.5**

SMP management option	Reason for selection / de-selection for test of alternatives
MR	Option selected as feasible
NAI	Not feasible due to proximity of dwelling and communities to HOL16.5
ATL	ATL would score more major negatives than positives. Ruled out by professional judgement

As shown by **Table 5.2**, the alternative policy to HTL at HOL 16.5 (East Lane) would be a policy of MR, which would allow the headland to retreat. Allowing East Lane to move landward would, however, have major effects on the environment in this area. Firstly, the land and habitat (lagoons, mudflat, vegetated shingle and saltmarsh) to the north of the site is likely to be lost as the coastline moves landward, with a concomitant impact on the European sites and habitats, although no Annex I priority habitats would be lost. An increased risk of coastal erosion would be experienced along the whole management area (HOL 16.1 – 5). The coastal community of Shingle Street and its associated heritage values would be threatened by destabilisation of the estuary mouth, while there would also be significant effects on the coastal landscape (given the iconic nature of this settlement). Water abstraction structures would be impacted as the coast moves landwards under rising sea levels, while the loss of sediment from Orfordness to the south would increase erosion in low energy areas (such as the Alde-Ore system) where erosion is currently not a problem. This increased rate of erosion would also be responsible for the loss of three Martello Towers, all SAMs, and would threaten the long-term viability of the coastal community of Shingle Street. **Table 5.3** provides a summary of the assessment of alternatives for HOL 16.5.

**Table 5.3 Summary of assessment of alternative for management unit 16.5 (with criteria removed where both options score a ‘not applicable’)**

ASSESSMENT CRITERIA	HOL 16.1 – 5	
	Current policy	MR at HOL 16.5
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>		
Will SMP policy provide a sustainable approach to habitat management?	Green	Green
Will SMP policy have an adverse effect on the integrity of any international sites?	Green	Red
Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Grey	Grey
Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Green	Grey
Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Green	Green
Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Green	Green
<b>ISSUE - Maintenance of Environmental Conditions to Support Biodiversity and the Quality of Life</b>		
<b>ISSUE - Maintenance of Balance of Coastal Processes on a Dynamic Linear Coastline with Settlements at Estuary Mouths</b>		
Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Red	Green
Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	Green	Red
Will SMP policy commit future generations to spend more on defences to	Green	Green

ASSESSMENT CRITERIA	HOL 16.1 – 5	
	Current policy	MR at HOL 16.5
maintain the same level of protection?		
Does the policy work with or against natural processes?		
<b>ISSUE - Maintenance of Water Supply in the Coastal Zone</b>		
Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?		
<b>ISSUE - Maintenance of the vales of the Coastal Landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>		
Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?		
Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?		
<b>ISSUE - Protection of Historic and Archaeological Features on a Dynamic Coastline</b>		
Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?		
Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?		
<b>ISSUE - Protection of Coastal Communities and Culture</b>		
<i>Protection of coastal towns and settlements</i>		
Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?		
Will SMP policy protect the coastal character of communities which have historically been undefended?		
<i>Protection of key coastal infrastructure</i>		
Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?		
Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?		

With regards to the analysis undertaken in **Table 5.3**, it therefore follows that, while the selected policy for HOL 16.5 does not appear sustainable, it is the best option from both a socio-economic and environmental viewpoint.

#### 5.4 **Secondary analysis – a consideration of the likely effects of the SMP on the key environmental issues of the Suffolk Coast**

Of the issues that were identified in the **Scoping Report** and presented in **Section 3** of this report, six issues remain which are not covered by other assessment mechanisms (such as the WFD assessment or the Habitats Regulations Assessment). These issues are discussed below in regard to the manner in which the management areas collectively have the potential to have an effect on each issue. This assessment is

based on the detailed assessment provided in **Appendix I** and is summarised in **Table 5.1**, which provides a clear and complete account of the effects of each management area on each issue (down to the level of detail of individual assessment criteria).

#### 5.4.1 Issue – maintenance and enhancement of biodiversity on a dynamic coast.

This issue relates to the manner in which SMP policy may affect the biodiversity of the Suffolk coast, given that it is a dynamic coastal environment, interspersed with fixed points that have developed historically for coastal settlements and at estuary mouths. The Suffolk coast has an extensive mixture of international and national designations and it is the effect on these habitat and species that are under consideration.

The assessment criteria provided cover a range of issues from the effects of international and national sites through to BAP habitat and species. The nature of the issue manifests itself in the need to maintain an overall balance in regard to the provision of natural coastal processes for intertidal habitat and species and approaches to the sustainable management of habitat and species lying landward of defences. Additionally there is a need for sediment along the coast to remain mobile, to the extent that it offers a degree of stability and dynamism required for the maintenance of transitional habitat.

Overall, the SMP provides a significant number of management areas which offer a minor benefit for this issue (the majority of management areas in fact). Additionally, three management areas provide a significant benefit in regard to this issue. A clear driver within the SMP process has been the desire to provide sustainable approaches to habitat management and this is demonstrated in the assessment found in **Appendix I**.

Six management areas did however demonstrate a minor negative effect in regards to the maintenance and enhancement of biodiversity on a dynamic coastline. A detailed account for each management area is provided in **Appendix I**; however the management areas in question are:

- KES 5.1 – 3;
- BEN 6.1 – 3;
- COV 7.1 – 2;
- SWD 8.1 – 3;
- ALB 14.1 – 4; and
- HOL 16.1 – 5.

One of the major issues relating to the maintenance of biodiversity and SMP policy relates to areas where a policy appears contrary to the intent to allow natural coastal evolution at the local level, but actually enables a shift to natural change in the wider system. A secondary issue here is the matter of acknowledging the role that the historic management has played in coastal stabilisation in Suffolk – the development of a series of fixed points.

The management areas where this is apparent are ALB 14.1 – 4 and HOL 16.1 – 5, which have been assessed as having a minor negative effect, in relation to providing a sustainable approach to habitat management. In management area ALB 14.1 – 4, the issue relates to the issue of holding the line at Slaughden in order to prevent rapid

destabilisation of the estuary system through a breach of the shingle bar. This policy has been selected, since in the wider context it provides time for adaptation and the development of a long-term strategy for the future of the estuary. The alternative would be a policy which would lead to the potential sudden breach of the shingle bar and massive destabilisation of the estuary system via the creation of a new mouth at Slaughden.

At management areas HOL 16.1 – 5, the overall intent is to provide a holding point at East Lane which will bring a degree of stabilisation to a wider system. This is coupled with the provision of a site specific study to monitor the effects of policy and shape future coastal management in a more sustainable manner. Alternative policies at East Lane (such as NAI) are likely to lead to the sudden and acute loss of sediment from the areas to the north – sediment which provides the stability and dynamism which is essential for the maintenance of the features of international sites. The preferred policy therefore seeks to offer the opportunity to provide the minimum level of intervention which would enable the sites to the north to function relatively naturally and to provide time for a considered approach to the wider management of habitat in this system.

The second issue relates to the balance of protecting BAP habitat in coastal areas. Management Areas KES 5.1 – 3 to SWD 8.1 – 3 (four management areas in total) were assessed as being minor negative with regards to this issue. BAP habitat (coastal vegetated shingle, saline lagoons and coastal sand dunes) could be lost through coastal squeeze as result of HTL policy in these areas, as the BAP habitat lies landward of existing defence lines. The HTL policy has been selected to protect existing settlements and within the context of the SMP is desirable from a socio-economic viewpoint. Coastal BAP habitats are ephemeral and it is considered that the wider management of the Suffolk coast will ensure that in the long term (SMP timeframe) such habitat will fluctuate in extent naturally. The alternative to the preferred policy in these areas would be the removal of protection from existing settlements which would have major and detrimental effects on local communities.

The final issue relates to SSSIs and instances where SMP policy has the potential to lead to units falling into unfavourable condition. Two management areas (KES 5.1 – 3 and HOL 16.1 – 5) are both considered likely to lead to unfavourable condition of coastal habitat through coastal squeeze as a result of HTL policies in areas fronted by SSSIs with designated coastal features. In both locations, HTL policies are a key component of wider management, in order to offer sustainable management of coastal biodiversity on an SMP basis. Such loss of habitat would be an undesired consequence of the continued protection of a coastal community at Kessingland and for the wider management of the coastline (in terms of biodiversity) at East Lane. In both examples clear drivers therefore exist which warrant the pursuit of these policies.

#### 5.4.2 Issue – maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths

This issue relates to the need to ensure that the balance of dynamism and stability on the Suffolk coast (which has evolved historically due to the practice of holding key coastal areas adjacent to settlements, with naturally developing frontages elsewhere) is maintained.

This issue needs to be considered in the face of relative sea level rise, which requires a paradigm shift in comparison to historic practice. Three management areas (KES 5.1 – 3, ALB 14.1 – 4 and HOL 16.1 – 5) have been assessed as having either a minor or major negative impact in regard to this assessment criterion. In each of the three areas, this assessment is based on the effect of policy which seeks to HTL on frontages adjacent to coastal communities (or in the interests of wider coast stability). SMP policy at KES 5.1 – 3 seeks to HTL in a location which is essential for community protection, but which would lead to the loss of habitat through coastal squeeze. ALB 14.1 – 4 and HOL 16.1 – 5 again relate to HTL policies at Slaughden and East Lane, with both examples seeking to control small frontages in the interests of long-term coastal stability. The intent of SMP policy in both cases is to allow time for adaptation of coastal management in anticipation of future shifts in coastal form. This effect will be addressed through the site specific study described in further detail in the mitigation section.

Seven management areas (see **Table 5.1**) are considered to have a minor negative effect on the need for future generations to provide expenditure on flood defence. In each example, the reason for this minor negative assessment is simply the intent of policy to maintain defence on frontages which protect coastal communities. Alternative policies may reduce future expenditure but would of course lead to loss of, or increased risk to coastal communities and the associated social and economic interests.

#### 5.4.3 Issue – maintenance of water supply in the coastal zone

This issue relates to the need to ensure that SMP policy will not lead to the loss of any key abstraction points due to saline intrusion or erosion. Only in one management area (DEB 17.1 – 4) has SMP policy been assessed as having a minor adverse effect on this issue (with the remaining areas having no effect or a minor positive effect). In management area DEB 17.1 – 4, the issue relates to the possible loss of a single abstraction point on the north shore of the River Deben due to a lowering of the standard of protection with potential intrusion. The overall effect of the SMP in regard to this issue has been to provide a more natural approach to management along this frontage, which continues to protect the majority of existing settlements.

#### 5.4.4 Issue – maintenance of the coastal landscape

This issue relates to the protection of the features which contribute towards the character and quality of the Suffolk coastal landscape. The assessment criteria address this issue in two ways:

1. To ensure that features critical to the integrity of the landscape are protected; and
2. To ensure that the provision of new features (relating to flood defence) do not have a detrimental effect on the coastal landscape.

SMP policy seeks to maintain the social aspects of the Suffolk landscape (small coastal villages which have a coastal character and larger coastal towns such as Southwold and its historic resort frontage) while striving to provide a mosaic of dynamic coastal habitat and geomorphology. With two exceptions, every management area has a minor positive effect on maintaining the character of the Suffolk coastal landscape. Of the remaining management areas, only MIN 12.1 – 4 is considered to have a minor adverse effect on the coastal landscape, due to the loss of a small chapel.



Overall, the SMP enables both the maintenance of static features while allowing the balance of dynamic features, which are essential to the character of the Suffolk coastal landscape. The SMP does not promote the creation of defence structures in locations where defences do not currently exist and which would be detrimental to the character of the coastal landscape. As a result, SMP policy has generally been assessed as and the effect of management areas is therefore considered to be universally neutral.

#### 5.4.5 Issue – maintenance of the archaeological and historic assets of the Suffolk coast

The inherent dynamic nature of the Suffolk coast has the potential to lead to the loss through natural change of archaeological and historic assets along the coastline. As historic environment designations (conservation areas, listed buildings etc.) tend to be concentrated around existing coastal settlements, SMP policy will generally protect the majority of coastal archaeological and historic assets. The premise for this protection is that features located in historic settlements will be protected as a component of such settlements and that all archaeological features (known or unknown) will be managed in a manner which provides time for investigation and adaptation (if required).

Only in three management areas is SMP policy considered to have a major adverse effect on historic buildings or settings, these being DUN 11.1 – 4, MIN 12.1 – 4 and COV 7.1. SMP policy at DUN 11.1 – 4 would be likely to lead to the loss of a SAM (Hospital of the Holy Trinity) and in time, the historic settlement of Dunwich through a NAI policy. The NAI policy would also in time lead to the loss of Covehithe village and its associated historic interest features. This policy would allow time for the study of these areas, since the loss would be due to relatively low levels of local erosion. Further to this, the actual location of Dunwich and Covehithe, on the edge of the land, is part of its historic character and their protection *in situ* is not considered sympathetic to the landscape values of the area or sustainable in the context of wider management. The indirect impacts on the setting of the villages and their assets is a key consideration of the SEA.

The NAI policy not only has detrimental implications on designated historic assets but also the numerous undesignated features in the area such as buried archaeology.

The option to HTL along this frontage (and defend Dunwich and Covehithe *in situ*) would require the provision of new defence works, which would detract from the character of Dunwich and the coastal landscape, while requiring future generations to commit to unjustifiable defence expenditure. SMP policy at management area MIN 12.1 – 4 would, through a NAI policy, lead to the eventual loss of a SAM (Leiston Abbey); however, its continued defence in this location is not sustainable given the need to allow coastal dynamism and sediment movement along this frontage.

The key requirement of English Heritage (EH) is the time and resources to provide a timely and comprehensive mitigation of any sites which may be lost due to coastal processes. This matter is addressed in the mitigation section of this report, where it is recommended that the potential loss of specific sites is addressed in the SMP Action Plan, to enable EH to quantify the resources which will be required during the timeline of the SMP.

#### 5.4.6 Issue – maintenance of coastal communities and associated culture

This issue relates to the need to maintain the features which are critical to the social environment and unique character of the Suffolk coast. The primary issues relating to shoreline management are the protection of key towns and settlements (including both large towns and smaller villages such as Dunwich and Covehithe), and the features they contain including critical infrastructure, valuable habitats and historic assets.

##### *Protection of Towns and Settlements*

In all management areas except one, SMP policy is not considered likely to have a negative impact on coastal communities, or their 'coastal character' (in areas such as Shingle Street and Dunwich). SMP policy protects existing settlements by the implementation of either a HTL or NAI policy on frontages which are considered to be sustainable over the plan period.

SMP policy in management area HOL 16.1 – 5 seeks to provide a balanced approach to the management of the dynamic, complex system around Orfordness. A central element of this area is the desire to offer sustainable management of the coastal community of Shingle Street, with this management being enabled by the ongoing control of this frontage. However, due to the requirement to provide on-going coastal defences to this area, SMP policy has been assessed as a minor negative in regard to its long term sustainability.

##### *Protection of key infrastructure*

On linear coastlines crossed by estuarine systems (like the Suffolk Coast), there is a need to ensure that key infrastructure is either maintained *in situ*, or that the utility of the feature is moved to a more sustainable location, with time being allowed for adaptation.

The consideration of critical infrastructure has been a central driver of SMP policy and this assessment demonstrates this by virtue of a minor positive effect being determined for the majority of management areas where infrastructure is located. SMP policy was assessed as having a minor negative effect at MIN 12.1 – 4, where the existing road between Eastbridge and surrounding areas is likely to be lost. However, the length of road lost is relatively small (approximately 200m) and it is expected that an alternative route will be easily established, with the utility being preserved and time being allowed for adaptation.

## 5.5 Overall Impacts of the Suffolk SMP

The Suffolk coast is traditionally a mix of dynamic, wild coastal habitat and established settlements on a fixed coastline. As such, a key driver for the SMP was the provision of balance between these two contrasting, albeit almost mutually exclusive requirements. In a wider context, this balance is dependent on sediment movement along the coast and the evolution of the coast in response to this.

In providing this balance, the SMP has devised a strategic approach to management which focuses on appropriate locations to 'hold' which are key features / receptors and enable the natural evolution of the coast in areas between fixed points. An additional consideration is the need to maintain a balance of coastal habitat in a relatively natural

yet sustainable manner, which may in the past have been created or responded to previous coastal management practice. It is in providing this balance that localised conflicts occur. By maintaining the protection of historic settlements and coastal communities, adverse effects on coastal habitat may arise through squeeze against defences etc. The critical element of this SMP has therefore been to provide this balance by avoiding serious adverse effects to the features and receptors listed in the tables in **Appendix I**, whilst providing positive, balanced benefits.

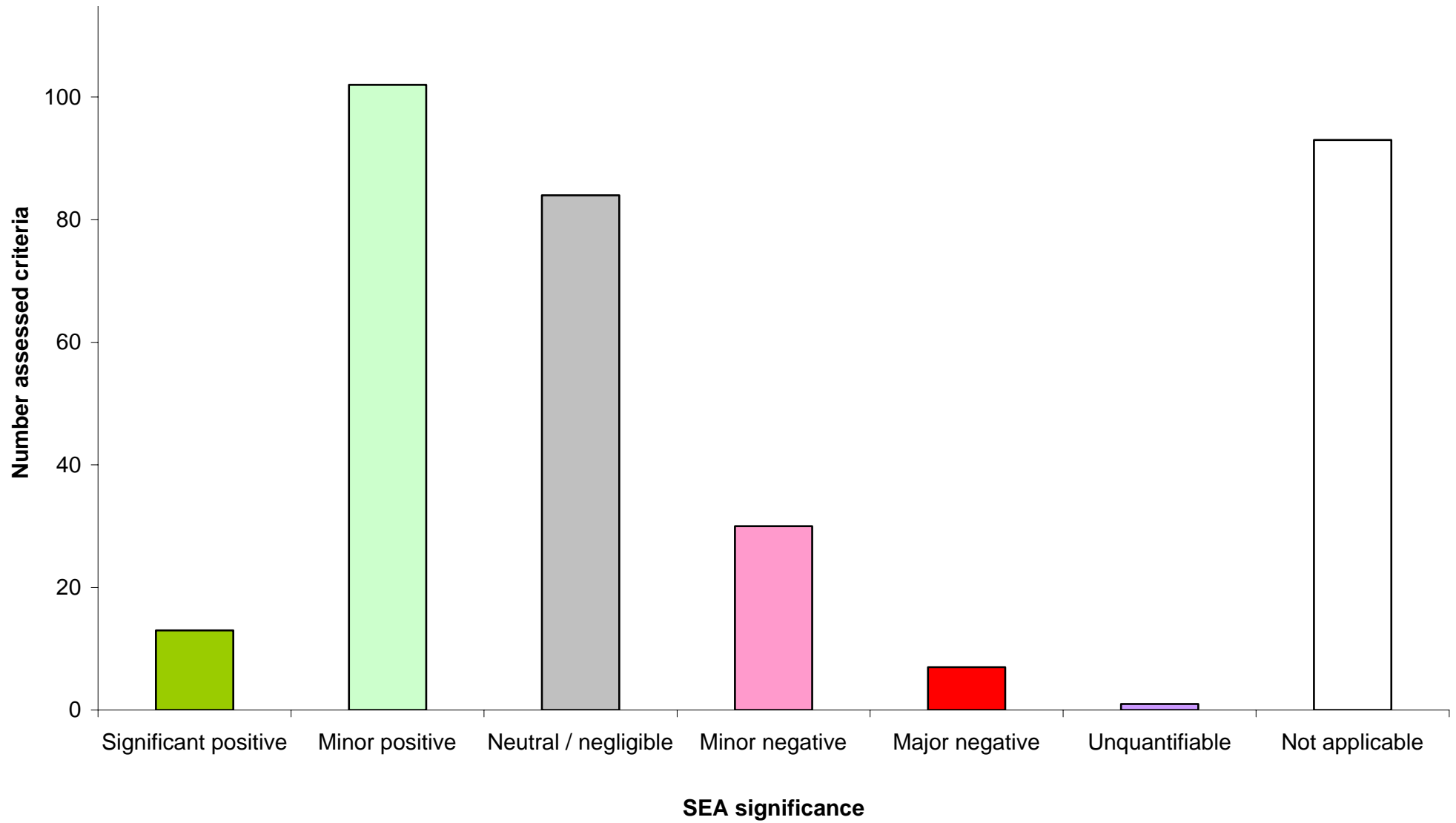
On the basis of this assessment, the Suffolk SMP is considered to have been successful in providing this balance; only four significant adverse effects have been identified and the majority of the remaining effects being either minor positive or neutral. Of the management areas which have been assessed as having a minor adverse effect, mitigation measures have been provided in the following section to offset these effects. The SMP can therefore be concluded to have provided a range of positive benefits to the environment, and where minor negative effects have been identified, mitigation has been devised to address these effects.

The overall significance of SMP effects across the SMP area is presented in **Table 5.4** and **Figure 5.1**.

**Table 5.4 Overall significance of SMP policy when appraised against assessment criteria**

Significance of SMP Policy		Number of policies appraised as significant under assessment criteria
	SMP policy is likely to result in a significant positive impact on the environment.	13
	SMP policy is likely to have a positive or minor positive impact on the environment (dependant on scheme specifics at implementation).	102
	SMP policy is likely to have a neutral or negligible effect on the environment.	84
	SMP policy is likely to have a negative or minor negative impact on the environment (dependant on scheme specifics at implementation).	30
	SMP policy is likely to have a significant negative impact on the environment.	7
	The relationship between the SMP policy and the environment is unknown or unquantifiable.	1
	Not applicable	93

Figure 5.1 Graphical representation of Overall significance of SMP policy when appraised against assessment criteria



## 6 MITIGATION & MONITORING

Of the minor adverse effects identified in this assessment, some are addressed within the wider context of synergies and balance in relation to the effects of other management areas, whilst some require specific mitigation. SMP policy in some management areas work against natural processes, for example, in order to hold key areas of coast to protect other environmental values. It is the manner in which policy is applied across the whole SMP area, in order to provide balance, that is the important factor in such examples and therefore mitigation is not appropriate or required.

However, the SMP does require mitigation for singular effects, where an adverse effect has been identified. It is considered that in this context, the following measures are required to support the SMP to avoid an adverse effect on the environmental values of the Suffolk Coast.

### 6.1 Habitat monitoring and management

#### 6.1.1 Loss of BAP Habitat

One of the main effects of SMP policy will be the shift in transitional habitat composition, due in part to the promotion of natural change under a scenario of rising relative sea levels. There is a need, therefore, to ensure that existing monitoring of BAP habitat in the plan area is provided in a manner which will highlight shifts in BAP habitat extent, and informs the BAP recording process. This mechanism is required to ensure that wider mechanisms exist for BAP habitat creation which addresses emerging requirements based on the effects of the SMP.

#### 6.1.2 Impacts on SSSIs

The SMP has the potential to affect the condition of SSSIs through changes in habitat and coastal management (due to the number of SSSIs on the coast), with knock-on effects on the high level targets relating to SSSIs in favourable condition. A key tool, therefore, in managing and monitoring change on the Suffolk coastline is the continued monitoring of SSSI units, which enables an early determination of where favourable condition may be threatened by inappropriate coastal management (SMP policy). It is considered that the existing monitoring programme undertaken by Natural England would be sufficient for this purpose, but there is a need to feed any initial findings into the SMP Action Plan and the development of subsequent SMP policy at the earliest stage.

#### 6.1.3 Site specific action plan for Orfordness

The policy at East Lane seeks to provide stability to the wider, complex system of Orfordness and the River Alde with a minimum of intervention. It in order for the collective effects of the policy within this system to be understood (and where appropriate reviewed and amended over time) there is a need for a site specific study to monitor geomorphological change and the rate of that change to establish how the coast and coastal habitat are responding to the management policies proposed by the Suffolk SMP. The results of this study will then actively feed into the next review of the SMP.

The intent of this is to ensure that the actual effects of policy are addressed in subsequent management or in scheme provision. The study would need to be developed to a scope agreed by Natural England and the Environment Agency, but would be expected to monitor:

- Changes in coastal morphology;
- Trends in coastal processes;
- Sediment movement within and around the system;
- Levels of erosion and accretion;
- Levels of habitat loss and gain;
- Condition of habitat;
- Changes in habitat composition; and
- The status of features on designated sites.

In addition to monitoring and reporting, the study would need to provide action measures where immediate or short term adverse effects on habitat or species as a result of management are identified. This development and specification of this study will be provided as an element of the SMP Action Plan.

#### 6.1.4 Expenditure on coastal defence

The SMP provides policy direction which is indicative of expenditure required on the coast. Simply, where SMP policy relates to the provision, enhancement or replacement of defences, the SMP policy will be instrumental in securing funding for schemes, since it is a key consideration in the determination of applications for funding.

It is not the intent or role of the SMP to secure funding, as a mechanism for policy. It therefore follows that in providing policy direction, the SMP fulfils its role in identifying the areas where funding will be required. To this end, it is considered outside of the scope of the SMP to provide funding as mitigation for policy.

#### 6.1.5 Investigation of coastal cultural and archaeological sites

Where the implementation of SMP policy would lead to the loss of sites/features which are important to the historic environment, two options are available:

1. Relocation of features to a more sustainable location; and
2. Provision of a site investigation to investigate and record the content and value of sites.

The Suffolk SMP has only identified two sites where an SAM would be lost – Leiston Abbey and the Hospital of the Holy Trinity. There may however be other 'unknown' sites which may only come to light as the SMP is implemented or indeed as the coast erodes. Within the SMP Action Plan therefore, English Heritage will be instrumental in establishing what the specific nature of losses may be, and where losses are known, a figure for investigation established so that this funding can be sought from Government. The intent of addressing this matter within the SMP Action Plan will be to ensure that English Heritage are provided with funds, in advance to investigate threatened sites. In addition to the loss of these heritage assets, there will also be a concomitant impact on the landscape value that these features provide.

## 7 REFERENCES

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## **APPENDIX I SEA ASSESSMENT TABLES**



Table A2.1 Assessment table for preferred policy options: LOW 1.1 – 4.3

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Only designated site in this Management Area is Pakefield Cliffs, the policy in front of this site is one of NAI. This policy would maintain an active face on this site (as existing). The remaining policies are for HTL.  The Management Area is therefore considered to have an overall neutral effect for this issue.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	NA	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UKBAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The cliffs in this Management Area fall within the BAP classification as Maritime Cliffs and Slopes. The policy however maintains the status quo in allowing the cliffs to naturally erode and maintain the dynamism required for this habitat.  The Management Area is therefore considered to have an overall neutral effect for this issue.	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The cliffs in this area are dependent on erosion to maintain their condition. The policy relevant to this feature maintains such processes.  The Management Area is therefore considered to have an overall neutral effect for this issue.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	The Management Area provides protection for established urban frontages and provides a natural NAI approach in front of the Pakefield Cliffs. Therefore the Management Area seeks to provide a level of balance. Overall, the Management Area will have a minor positive benefit in regard to this issue.	Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Professional expert judgment required on the overall integrity and balance on the coast.	Water Soil Landscape Historic Environment Habitats Species Population Communities
		The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral.	Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future.	Projected future risk levels for communities (existing or emerging).	
		In LOW02, the management of flood risk will be addressed by the regeneration plan. Potential increase in commitment to flood risk management will therefore be assessed against benefit to the community. The HTL policies within this Management Area will protect the communities of Lowestoft and in LOW03 the important area of South Beach and the area around the harbour entrance. But such defences will need to be increased in regard to SLR. The effect is considered therefore to be minor negative.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	
		The overall intent of the Management Area is to maintain balance between protection of a fixed urban area and dynamism of a natural frontage. The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The HTL policy adjacent to Lowestoft will provide a minor positive contribution to the defence of freshwater aquifers and infrastructure.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers.	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area provides a balance of natural and anthropogenic features in this area and the effect is therefore minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		No new features are proposed by this policy.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	Policy in this Management Area will continue to maintain such features. In particular, in LOW04 the intent is to protect Pakefield Church.  Therefore there is an overall minor positive benefit.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides protection for urban areas and features within them. The policy of NAI at Pakefield Cliffs encourages a fresh face on these features and provides a natural timeline for investigation and study.  The Management Area provides minor positive benefits.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected.	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal	All major settlements within a 1 in 1000 year flood zone.	The HTL policies for defended areas provide sustainable defence and so the policy has a minor positive benefit.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation.	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.		Not relevant to the character of the area.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	NA	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	The Management Area HTL will provide ongoing defence of coastal roads in Lowestoft (A12 and A117). The NAI policy will not lead to the loss of any infrastructure.  The Management Area provides minor positive benefits	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	The Management Area HTL will provide ongoing defence of the rail line in Lowestoft. The NAI policy will not lead to the loss of any rail network.  The Management Area provides minor positive benefits	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area.	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The HTL policy will maintain coastal footpath in urban areas and would not lead to the loss of any access in front of Pakefield Cliffs. Opportunities to realign the footpath would be considered if required.  The Management Area provides minor positive benefits	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>					
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.2 Assessment table for preferred policy options: KES 05.1 – 5.4

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Only designated site in this Management Area is Kessingland Cliffs (Pakefield to Eastern Baven's SSSI), the policy in front of this site is one of NAI. This policy would maintain an active face on this site (as existing). Remaining policies are for HTL in front of Kessingland.  The Management Area is therefore considered to have an overall neutral effect for this issue.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	NA	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven's SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UKBAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The cliffs in this Management Area fall within the BAP classification as Maritime Cliffs and Slopes Coastal Vegetated Shingle and Coastal Sand Dunes. The policy however maintains the status quo in allowing undefended frontage to behave naturally (via an NAI policy). Management of the Ness will lead to loss of dunes and shingle habitat. This feature is to be allowed to function naturally. Defence of the area to the south may constrain new development	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>of dunes in this area. However this defence is required for the community at Kessingland.</p> <p>Therefore, the Management Area is considered to have a minor negative effect on this issue.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this Management Area is designated for sea cliffs (geological) and for vegetated shingle. The policy however maintains the status quo in allowing undefended frontage to behave naturally (via an NAI policy). The HTL policies to the south, may lead to the loss (through squeeze) of shingle habitat – however this defence is required for the community at Kessingland.</p> <p>Therefore, the Management Area is considered to have a minor negative effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitats Species</p>
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Management Area provides protection for established urban frontages and provides a natural NAI approach in front of the Kessingland Cliffs. Therefore the Management Area seeks to provide a level of balance. Overall, the Management Area will have a minor negative effect however due to the loss of shingle/dune habitat through squeeze.</p> <p>The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral.</p> <p>The HTL policies within this Management Area will protect the communities of Lowestoft but, such defences will need to be increased in regard to SLR. The effect is considered therefore to be minor negative.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p> <p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast.</p> <p>Projected future risk levels for communities (existing or emerging).</p> <p>Projected figures for anticipated future coastal defence works.</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the Management Area is to maintain balance between protection of a fixed urban area and dynamism of a natural frontage. The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The HTL policy adjacent to Kessingland will provide a minor positive contribution to the defence of freshwater aquifers and infrastructure.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area provides a balance of natural and anthropogenic features in this area and the effect is therefore minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		No new features are proposed by this policy.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation 3. Listed Buildings within the context of historic settlements.	Policy in this Management Area will continue to maintain such features.  Therefore there is an overall minor positive benefit.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides protection for urban areas and features within them. The policy of NAI at Kessingland Cliffs encourages a fresh face on these features and provides a natural timeline for investigation and study. The Management Area provides minor positive benefits.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<i>Protection of coastal towns and settlements</i>					



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.</p>	<p>All major settlements within a 1 in 1000 year flood zone.</p>	<p>The HTL policies for defended areas provide sustainable defence and so the policy has a minor positive benefit.</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p>	<p>Populations Communities</p>
		<p>Not relevant to the character of Kessingland.</p>	<p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>Maintenance of the character of undefended settlements</p>	
<p>Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).</p>	<p>Features which are essential to the sustainability and quality of life of coastal communities.</p>	<p>NA</p>	<p>Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?</p>	<p>Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.</p>	<p>Communities</p>
<p><b>Protection of key coastal infrastructure</b></p>					
<p>The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.</p>	<p>All roads within the 1 in 1000 year floodplain</p>	<p>NA – coastal roads are located outside the anticipated scope of influence.</p>	<p>Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?</p>	<p>Loss of any major route to coastal settlements on the Suffolk coast.</p>	<p>Communities</p>
<p>The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).</p>	<p>All rail links within the 1 in 1000 floodplain</p>	<p>NA.</p>	<p>Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?</p>	<p>Loss of any active rail links on the Suffolk coast.</p>	<p>Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>The HTL policy will maintain coastal footpath in urban areas and would not lead to the loss of any access in front of Kessingland Cliffs.</p> <p>Therefore SMP policy in this Management Area has a minor positive benefit.</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.3 Assessment table for preferred policy options: BEN 06.1 – 3

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are the southern edge of Pakefield to Eastern Barents SSSI, Benacre to Eastern Barents SPA and Benacre to Eastern Barents Lagoons SAC.  The Management Area seeks to enable natural development of the coast and not defend unsustainable habitat, therefore there is a significant benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	SMP policy within this management area will not have an adverse effect on the integrity of International sites, as the saline lagoons would be lost due to natural change. Saline lagoons are a highly dynamic and ephemeral habitat type and any control points would be conditioned so that their design would take account of coastal dynamics. The overall effect is therefore minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	The saline lagoons in this site would be lost due to natural processes and not as a result of the direct action of SMP policy, therefore the effect is neutral.	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Barents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	The policy provides for a more natural coastal system in this area, where the potential for saline lagoon creation is accommodated. The overall effect is therefore minor positive.	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UKBAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain Grazing Marsh, Coastal Vegetated Shingle, Coastal Sand Dunes and Saline Lagoons. The realignment would lead to the loss of Saline Lagoons (which are likely to migrate landward) and coastal grazing marsh – to be replaced by Coastal Saltmarsh.	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		Therefore, the Management Area is considered to have a minor negative effect on this issue. Some BAP habitat will be lost but an equivalent amount of alternate habitat will be gained.			
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSI in this Management Area is designated for vegetated shingle, saline lagoons, floodplains and fens. The policy promotes natural change via realignment and not promoting the defence of unsustainable freshwater habitat. The status of the site is to maintain favourable condition subject to natural change. It is considered that this policy provides for a more natural development of the coast. SMP policy in this management area seeks to ensure that the geological features contained within the Pakefield-Easton Barents SSSI are promoted through the maintenance of an open face.  Therefore, the Management Area is considered to have a minor positive effect on this issue.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	The Management Area provides the natural development of the coast in this undeveloped area. Therefore the Management Area seeks to provide a level of natural balance. Overall, the Management Area will have a significant positive effect however due to the loss of shingle/dune habitat through squeeze.	Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Professional expert judgment required on the overall integrity and balance on the coast	Water Soil Landscape Historic Environment Habitats Species Population Communities
		The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral	Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	Projected future risk levels for communities (existing or emerging).	
		The MR policies here will lead to a reduction in the amount required for future defence works.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the Management Area is to promote a natural evolution of the coast. The overall effect is therefore significant positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The policy will lead to the realignment of an extensive area of fluvial/estuarine systems. The potential therefore to the freshwater system and salinisation of the aquifer cannot be ruled out.  The effect of this Management Area is therefore unknown.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will enhance the coastal mosaic of habitat type, and since this coast has lost much of its saltmarsh, the creation of this habitat will lead to an increase in the diversity of natural features on the coast. The Management Area is considered to have a minor positive effect on this issue.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		Neutral effect.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation 3. Listed Buildings within the context of historic settlements.	NA	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and the benefit is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	The HTL policies for defended areas provide sustainable defence and offer two epochs for adaptation prior to the MR in Epoch 3 covering south Kessingland. The policy has a minor positive benefit.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		Maintains the character of Kessingland.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	NA	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	NA – coastal roads are located outside the anticipated scope of influence.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>The Management Area would lead to inundation over the existing coastal footpath, however the timing of this and its phased nature will enable alternate routes to be provided.</p> <p>Therefore the Management Area has a neutral effect.</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.4 Assessment table for preferred policy options: COV 7.1 – 7.2

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are Pakefield to E. Bavents SSSI, Benacre to Eastern Bavents SPA and Benacre to Eastern Bavents Lagoons SAC. The Management Area seeks to enable natural development of the coast and not defend unsustainable habitat, therefore there is a significant benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policy seeks to ensure the natural development of the coast, which would therefore not have an adverse effect on the integrity of the site and the effect is therefore neutral.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	The three broads adjacent to this area of Benacre Broad, Covehithe Broad and Easton Broad are all examples of saline lagoons. The effect of this policy would be to enable natural processes to continue on this coast, with it being likely that the SAC lagoon at Easton Bavents will migrate up the valley, albeit at the expense of freshwater reedbed habitat. Any change to the lagoons would therefore be as a result of natural change, with no adverse effect on integrity. The effect is therefore neutral.	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	The policy takes a NAI approach to promote natural coastal evolution in this section where the shingle ridge maintains through percolation the three broads listed above. It is considered that the management of NAI on this frontage (where the creation of this ephemeral habitat type would be likely) would not have an adverse effect on site integrity. The effect is therefore neutral.	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Lowland Dry Acid Grassland, Maritime Cliffs and Slopes and Saline Lagoons. The Management Area promotes a natural movement of the coastline which may lead to some loss and or gain of	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>BAP habitat, such losses if they occur will however be a component of natural movement of the coast.</p> <p>Therefore, the Management Area is considered to have a minor adverse effect on this issue. Some BAP habitat may be lost but an equivalent amount of alternate habitat will be gained.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this Management Area is designated for vegetated shingle, saline lagoons, floodplains and fens. The policy promotes natural and not promoting the defence of unsustainable freshwater habitat. The status of the site is to maintain favourable condition subject to natural change. It is considered that this policy provides for a more natural development of the coast</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitats Species</p>
<p><b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b></p>					
<p><b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b></p>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Management Area provides the natural development of the coast in this undeveloped area. Therefore the Management Area seeks to provide a level of natural balance. Overall, the Management Area will have a minor positive effect however due to the development of a natural coastal system.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>
		<p>The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral</p>	<p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p>	<p>Projected future risk levels for communities (existing or emerging).</p>	
		<p>The Management Area will not lead to any increased requirement for future defence works. Therefore minor positive.</p>	<p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Projected figures for anticipated future coastal defence works.</p>	

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the Management Area is to promote a natural evolution of the coast. The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The Management Area will lead to the natural development of this area with no major incursions covering terrestrial areas expected. The effect of this Management Area is therefore neutral.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers.	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will provide for an extensive area of coast which will evolve naturally. The benefit is therefore expected to be minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		No new features are proposed by this policy.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	The Management Area provides a NAI approach the management of Covehithe. Covehithe is a small historic settlement - it is not a conservation area, but has a Grade 1 listed building at St Andrews Church. The long term protection of these features (which are located over 500m from the coast) cannot be guaranteed in the context of promoting the natural development of the coast. Given the distance from the foreshore however any loss is considered extremely unlikely in the timeline of the SMP.  The overall affect will therefore be neutral.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides the natural development of the coast, this will provide adequate time for investigation and study, but will not secure their protection. The overall	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		affect will therefore be neutral.	survey of archaeological sites where loss is expected?		
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	The NAI policies promote the natural development of this section of rural coast and no protection is offered for the small settlement at Covehithe. The Management Area has a neutral effect.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		The policy covers the settlement at Covehithe within a context of a naturally evolving coast. The coastal character will therefore be maintained.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	NA	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	NA coastal roads are located outside the anticipated scope of influence.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes	All rail links within the 1 in 1000 floodplain	NA.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).					
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The coastal footpath in this area runs over 500m inland of the coast.  Therefore the Management Area has a neutral effect.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities
The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.	Sizewell Power station	NA	Will SMP policy protect in situ, Sizewell Nuclear power station?	Maintenance of Sizewell Power station.	Communities

Table A2.5 Assessment table for preferred policy options: SWD 8.1 – 8.3

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are Pakefield to E. Bavents SSSI. The Management Area seeks to enable natural development of the open coast to the north whilst protecting Southwold to the south. The features of the SSSI in this area require natural processes so this Management Area would therefore have a minor positive effect.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	NA	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Maritime Cliffs and Slopes and Saline Lagoons. The Management Area promotes a natural movement of the coastline to the North of Southwold which will maintain the nature of the cliff/slope habitat. The epoch 2 realignment immediately to the north of Southwold may lead to the saline lagoons moving landward, but would create a more natural, sustainable area of coast.  Therefore, the Management Area is considered to have a minor negative	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		effect on this issue. Some BAP habitat may be lost but an equivalent amount of alternate habitat will be gained.			
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSI in this Management Area is designated for coastal cliffs. The policy promotes natural coastal evolution which is necessary for the condition of this type of habitat. It is considered that this policy provides for a more natural development of the coast  Therefore, the Management Area is considered to have a minor positive effect on this issue.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	The Management Area provides the natural development of the coast in this undeveloped area to the north of Southwold whilst protecting the established settlement itself in a coordinated manner. Therefore the Management Area seeks to provide a level of natural balance. Overall, the Management Area will have a significant positive effect however due to the development of a natural coastal system.	Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Professional expert judgment required on the overall integrity and balance on the coast	Water Soil Landscape Historic Environment Habitats Species Population Communities
		The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral.	Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	Projected future risk levels for communities (existing or emerging).	
		The Management Area will not lead to any increased requirement for future defence works.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	
		The overall intent of the Management Area is to promote a natural evolution of the coast. The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The Management Area will lead to the natural development of this area, and will not lead to threats to aquifers or infrastructure. The effect of this Management Area is therefore neutral.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will provide for the natural development of the coast to the north of Southwold whilst maintaining the iconic frontage adjacent to Southwold itself.  The benefit is therefore expected to be minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		Apart from the shift in coastal form allied to the realignment in epoch 2, no new features are proposed by this policy.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	The Management Area provides protection for Southwold which contains a wide variety of listed buildings and conservation areas.  The Management Area therefore actively secures the retention of these features.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides an epoch before the realignment policy for the area to the north of Southwold, thereby providing adequate time for its study.  The Management Area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and the benefit is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<i>Protection of coastal towns and settlements</i>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.</p>	<p>All major settlements within a 1 in 1000 year flood zone.</p>	<p>The Management Area promotes the natural development of rural coast and the protection of areas adjacent to Southwold. The Management Area therefore seeks to provide sustainable protection in a natural context and has a minor positive benefit.</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p>	<p>Populations Communities</p>
		<p>Easton Bavents Community has suffered loss in the past. Even so this community is not really typical of 'Living on the Edge'.</p>	<p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>Maintenance of the character of undefended settlements</p>	
<p>Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).</p>	<p>Features which are essential to the sustainability and quality of life of coastal communities.</p>	<p>NA</p>	<p>Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?</p>	<p>Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.</p>	<p>Communities</p>
<p><b>Protection of key coastal infrastructure</b></p>					
<p>The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.</p>	<p>All roads within the 1 in 1000 year floodplain</p>	<p>NA – coastal roads are located outside the anticipated scope of influence.</p>	<p>Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?</p>	<p>Loss of any major route to coastal settlements on the Suffolk coast.</p>	<p>Communities</p>
<p>The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).</p>	<p>All rail links within the 1 in 1000 floodplain</p>	<p>NA.</p>	<p>Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?</p>	<p>Loss of any active rail links on the Suffolk coast.</p>	<p>Communities</p>



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>The coastal footpath in this area runs inland of the coast to the north, moving out and along the coast in the area suggested for realignment then moving along the coast in front of Southwold. The footpath would need to be realigned following realignment of the coast, but this would not seem problematic given the access routes landward of this area. The overall effect is therefore either neutral or marginally minor negative due to the loss of coastal frontage path on the site of the realignment.</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.6 Assessment table for preferred policy options: BLY 9.1 – 9.6

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are Minsmere Walberswick Heaths & Marshes SSSI, Minsmere Walberswick Ramsar/SPA and Minsmere Walberswick Heaths and Marshes SAC. The Management Area seeks to provide a sustainable approach to the sites of the Blythe whilst maintaining harbour side activity at the mouth. The Management Area seeks to provide stability to the mouth of the estuary by a HTL.  The Management Area therefore will provide a significant benefit for habitat in this area	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	NA	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven's SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain Grazing Marsh, Mudflat, Sand Dunes and Lowland Dry Acid Grassland. The Management Area promotes a natural development of the estuary and coast whilst maintaining a sustainable harbour. There would be a shift from Coastal Floodplain Grazing	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>Marsh to grazing marsh influenced by saline intrusion and saltmarsh. It considered however that the overall provision of BAP habitat will remain constant.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue. Some BAP habitat may be lost but an equivalent amount of alternate habitat will be gained.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this Management Area is designated for mudflat and grazing marsh. The Management Area provides for a more natural management of this system and it is considered that policy provides for a more natural development of the coast and estuary.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitats Species</p>
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Management Area provides the natural development of the coast/estuary in this area to the south of Southwold whilst protecting the established harbour and estuary mouth in a coordinated manner. Therefore the Management Area seeks to provide a level of natural balance. Overall, the Management Area will have a major positive effect however due to the development of a natural coastal system.</p> <p>The Management Area will not lead to increased levels of erosion or flood risk. However ongoing maintenance will be required for defences to the north/rear of Walberswick and to the harbour. The overall effect therefore is neutral.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p> <p>Projected future risk levels for communities (existing or emerging).</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		There will be continued commitment to maintain use of the harbour and to retain beaches and protection to Southwold.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	
		The overall intent of the Management Area is to promote a natural evolution of the coast/estuary. However, in order to stabilize areas to support communities, some degree of defence is central to this Management Area  The overall effect is therefore minor negative.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The Management Area will lead to natural development, and will lead to possible threats of this supply. This will need to be examined in more detail.  The effect of this Management Area is therefore minor negative.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will provide for the natural development of the coast to the south of Southwold whilst maintaining the harbour side activities on the Blythe. The benefit is therefore expected to be minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The Management Area will not introduce new features into the landscape, although there may be some shift in habitat composition.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation 3. Listed Buildings within the context of historic settlements.	The Management Area provides the opportunity to maintain the harbour and its buildings and also for Walberswick which contain a variety of listed buildings and conservation areas. The Management Area therefore actively secures the retention of these features.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or heritage assets lost or impacted by inundation or erosion.	Historic Environment

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and potential mitigation. Losses to the historic environment can never be fully overcome by mitigation and a neutral effect is anticipated.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	<p>The Management Area promotes the natural development of coast/estuary and the protection of the harbour which is essential to the economy of this area. The Management Area therefore seeks to provide sustainable protection in a natural context and has a minor positive benefit.</p> <p>The Management Area provides for the protection of Walberswick in a natural dynamic setting and therefore maintains its coastal character. There is therefore a minor positive benefit.</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p> <p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p> <p>Maintenance of the character of undefended settlements</p>	Populations Communities
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	The Management Area maintains the pedestrian bridge across the Blythe which is essential to the local economy of Southwold, the harbour and Walberswick. The Management Area also seeks to ensure that harbour side activities on the Blythe are maintained. The benefit is therefore minor positive.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided	All roads within the 1 in 1000 year floodplain	NA coastal roads are located outside the anticipated scope of influence.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
as a social and economic function. The potential exists for this network to be affected by coastal processes.					
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The coastal footpath in this area runs along the coast/estuary and over the pedestrian bridge over the Blythe. The Management Area would not compromise this route or access and the benefit is therefore minor positive.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities
The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.	Sizewell Power station	NA	Will SMP policy protect in situ, Sizewell Nuclear power station?	Maintenance of Sizewell Power station.	Communities

Table A2.7 Assessment table for preferred policy options: BLY 10.1 – 10.3

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are Minsmere Walberswick Heaths & Marshes SSSI, Minsmere Walberswick Ramsar/SPA and Minsmere Walberswick Heaths and Marshes SAC. Policy seeks to allow natural progression of the upper estuary (landward of A12), HTL adjacent to the A12 and providing MR over the unsustainable defences over Tinkers Marshes. Policy therefore seeks to protect key infrastructure while allowing habitat to move landward in response to SLR. Therefore minor positive benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policies will not affect the SAC. There will be a loss of freshwater habitat on the SPA but this is due to the need to provide a sustainable approach to site management and to create habitat for Intertidal species. Overall no adverse effect is considered and the effect is minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven's SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain Grazing Marsh, Mudflat, Reedbeds and Lowland Dry Acid Grassland. The Management Area promotes a natural development of the estuary whilst maintaining a sustainable defence of the A12. There would be	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>shift from Coastal Floodplain Grazing Marsh to saltmarsh. It considered however that the overall provision of BAP habitat will remain constant.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue. Some BAP habitat may be lost but an equivalent amount of alternate habitat will be gained.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this Management Area is designated for mudflat, reed bed and grazing marsh. The Management Area provides for a more natural management of this system and it is considered that policy provides for a more natural development of the estuary. Policy for MR areas will relieve pressure of coastal squeeze, but HTL policy may lead to ongoing declining condition. Overall, the policy will enable habitat movement, rather than prevent it.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitats Species</p>
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Policy seeks to provide a dynamic estuarine system whilst HTL for the A12. Overall, the Management Area will have a major positive effect however due to the development of a natural coastal system.</p> <p>The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral</p> <p>The Management Area will not lead to any increased requirement for future defence works, and will in fact reduce the level of maintained defences via MR over Tinkers Marshes. Overall, the policy reduces the amount of defence spending in the future.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p> <p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p> <p>Projected future risk levels for communities (existing or emerging).</p> <p>Projected figures for anticipated future coastal defence works.</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the Management Area is to promote a natural evolution of the estuary. The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The Management Area will lead to the natural development of this area, and will not lead to threats to aquifers or infrastructure (abstraction points are located on the northern shore and will not be compromised). The effect of this Management Area is therefore neutral.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will provide for the natural development of the estuary which in this area is largely agricultural. The benefit is therefore expected to be minor positive due to the provision of a more active, natural coastal landscape.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The Management Area will not introduce new features into the landscape, although there may be some shift in habitat composition.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation 3. Listed Buildings within the context of historic settlements.	Not applicable in this area.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and the benefit is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<i>Protection of coastal towns and settlements</i>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.</p>	<p>All major settlements within a 1 in 1000 year flood zone.</p>	<p>Not applicable to this area.</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p>	<p>Populations Communities</p>
		<p>Not applicable to this area.</p>	<p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>Maintenance of the character of undefended settlements</p>	
<p>Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).</p>	<p>Features which are essential to the sustainability and quality of life of coastal communities.</p>	<p>Not applicable in this area.</p>	<p>Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?</p>	<p>Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.</p>	<p>Communities</p>
<p><b>Protection of key coastal infrastructure</b></p>					
<p>The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.</p>	<p>All roads within the 1 in 1000 year floodplain</p>	<p>The HTL policy adjacent to the A12 will ensure its protection.  The effect of this Management Area is therefore neutral</p>	<p>Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?</p>	<p>Loss of any major route to coastal settlements on the Suffolk coast.</p>	<p>Communities</p>
<p>The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).</p>	<p>All rail links within the 1 in 1000 floodplain</p>	<p>NA.</p>	<p>Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?</p>	<p>Loss of any active rail links on the Suffolk coast.</p>	<p>Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>Not applicable in this area</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.8 Assessment table for preferred policy options: DUN 11.1 – 11.4

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this Management Area are Minsmere Walberswick Heaths & Marshes SSSI, Minsmere Walberswick Ramsar/SPA and Minsmere Walberswick Heaths and Marshes SAC. Policy seeks provide a more natural evolution of the coastline by offering minimal management input to the frontage. Therefore minor positive benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The key policy of this frontage is 11.2 which takes an NAI approach to promote the natural evolution of this frontage. The intent being to prevent loss through squeeze of foreshore features and providing sustainable defence for freshwater features behind. The policy is accompanied by a caveat to ensure that management enables the creation of freshwater habitat in advance of its loss. The overall effect is therefore minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	As above, the NAI policy is intended to provide a natural development of the coast, where inland management will promote the migration and creation of saline lagoons. The overall effect is therefore minor positive.	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitat Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	As above, the NAI policy is intended to provide a natural development of the coast, where inland management will promote the migration and creation of saline lagoons. The overall effect is therefore minor positive.	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitat
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain Grazing Marsh, Lowland Dry Acid Grassland, Coastal Vegetated Shingle, Coastal Cliffs and Slopes and Reed bed. The	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitat

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>Management Area promotes a natural development of the coast. There would be a gradual rollback and shift of all BAP features. It is considered however that the overall provision of BAP habitat will remain constant.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this area. Some BAP habitat may be lost but an equivalent amount of alternate habitat will be gained.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this Management Area is designated for mudflat, reed bed, shingle and grazing marsh. . The Management Area provides for a more natural management of this coast.</p> <p>Therefore, the Management Area is considered to have a minor positive effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitat Species</p>
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Policy seeks to provide a dynamic coastal system which is underpinned by dynamism and natural coastal evolution. The policy therefore has minor positive effect.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>
		<p>The Management Area will not lead to increased levels of erosion or flood risk. The overall effect therefore is neutral</p>	<p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p>	<p>Projected future risk levels for communities (existing or emerging).</p>	
		<p>The Management Area will not lead to any increased requirement for future defence works.</p>	<p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Projected figures for anticipated future coastal defence works.</p>	
		<p>The overall intent of the Management Area is to promote a natural evolution of the estuary. The overall effect is therefore minor positive.</p>	<p>Does the policy work with or against natural processes?</p>	<p>Professional expert judgment required on the overall approach to management.</p>	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The Management Area will lead to the natural development of this area, and will not lead to threats to aquifers or infrastructure. The effect of this Management Area is therefore neutral.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers.	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The Management Area will provide for the natural development of the coast. The benefit is therefore expected to be minor positive due to the provision of a more active, natural coastal landscape.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The Management Area will not introduce new features into the landscape, although there may be some shift in habitat composition.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	The policy would lead to the ultimate loss of a SAM (Hospital of the Holy Trinity) at the southern edge of this area. However due to its location adequate time would be provided for its study. The policy would lead to the loss over time of Dunwich (listed buildings and Conservation Area included) which is considered not to be sustainable in regard to threats from erosion and SLR. Due to the loss of the SAM the overall effect is therefore major negative.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The Management Area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and the benefit is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected.	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are	All major settlements within a 1 in 1000 year flood zone.	The Policy prevents Dunwich from Dunwich River, however the long-term protection of Dunwich is not considered sustainable. The overall effect is therefore neutral.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in	Populations Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.		The Policy provides for the retention of the 'living on the edge' character of Dunwich, by not providing unsustainable defence. The effect is therefore minor positive.	Will SMP policy protect the coastal character of communities which have historically been undefended?	unsustainable coastal locations. Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	Not applicable in this area.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>Not applicable in this area</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>



Table A2.9 Assessment table for preferred policy options: MIN 12.1 – 12.4

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Minsmere Walberswick Heaths & Marshes SSSI, Minsmere Walberswick Ramsar/SPA and Minsmere Walberswick Heaths and Marshes SAC. Policy seeks allow a natural evolution of the coastline, with minimal management input to this frontage. Therefore deemed a minor positive benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policy promotes the natural development of the coastline, where a dynamic range of habitat can function according to natural change. Part of this process may be the loss or migration of freshwater or saline habitat; this is addressed via mitigation (the habitat replacement policy). The overall effect is therefore minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitat Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitat
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain and Grazing Marsh, Lowland Dry Acid Grassland, Coastal Vegetated Shingle, Saline Lagoons, Coastal Cliffs and Slopes and Reed bed. The management area promotes a natural development of the coast. There would be a gradual shift from Coastal Floodplain/Grazing Marsh to Saltmarsh (via control of the sluice). The shingle	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitat

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>and saline lagoon habitat will gradually migrate landward. It is considered however that the overall provision of BAP habitat will remain constant.</p> <p>Therefore, the management area is considered to have a minor positive effect on this area. Some BAP habitat may be lost, but an equivalent amount of alternate habitat will be gained.</p>			
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSI in this management area is designated for reed bed, shingle and grazing marsh. The management area provides for a more natural management of this coast.</p> <p>Therefore, the management area is considered to have a minor positive effect on this issue.</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitat Species</p>
<p><b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b></p>					
<p><b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b></p>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Policy seeks to provide a dynamic coastal system which is underpinned by dynamism and natural coastal evolution. The previous policy was one of constraint at the sluice; this policy seeks to promote natural change and therefore has significant positive effect.</p> <p>The management area will not lead to increased levels of erosion or flood risk. Coastal properties may be nearer to the foreshore as a result of MR, but will be protected by fronting saltmarsh as opposed to a shingle ridge. The overall effect therefore is neutral</p> <p>The management area will require additional defence works at Eastbridge and Coney Hill. However these are limited in their extent compared to the works required to maintain the shingle ridge. The overall effect is therefore neutral or minor positive.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p> <p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p> <p>Projected future risk levels for communities (existing or emerging).</p> <p>Projected figures for anticipated future coastal defence works.</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the management area is to promote a natural evolution of the coast and removes the need to defend the sluice as part of this (previous policy was to HTL). The overall effect is therefore significant positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The management area will lead to the natural development of this area, and will lead to increased threats to aquifers, however the defence provided by the existing shingle ridge is not considered to be sustainable therefore the effects of realignment and NAI are desirable and to not actively lead to any significant threat to aquifers. The effect of this management area is therefore neutral (given the effects of SLR).	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide for the natural development of the coast. As part of the realignment of the coast, there will be a loss of a SAM (chapel which is the first site of Leiston Abbey). The effect is therefore expected to be minor negative due to the effects of the loss of the SAM, but countered by the provision of a more active, natural coastal landscape.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The management area will not introduce new features into the landscape, although there may be some shift in habitat composition.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	The policy would lead to the ultimate loss of an SAM (chapel at Leiston Abbey) at the southern edge of this area. However due to its location adequate time would be provided for its study. The overall effect is however irreplaceable and considered major negative.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The management area provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The management area therefore may lead to the loss of features, but time is provided for their study and the benefit is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	<p>The Policy provides for MR, but provides defences for existing settlements at Coney Hill and Eastbridge. Coupled with the effect of saltmarsh as a defence mechanism the overall effect is therefore is minor positive.</p> <p>The policy will provide defence whilst moving the foreshore nearer to small settlements therefore increasing the coastal character of the area. The effect is therefore minor positive.</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p> <p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p> <p>Maintenance of the character of undefended settlements</p>	Populations Communities
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	The MR policy would lead to the loss of the road connecting Eastbridge to rural areas to the north, west and south. It is anticipated however that due to the length of road affected being relatively small (200m) alternate routes would be provided. The overall effect is therefore considered to be minor negative.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).</p>	<p>All rail links within the 1 in 1000 floodplain</p>	<p>NA.</p>	<p>Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?</p>	<p>Loss of any active rail links on the Suffolk coast.</p>	<p>Communities</p>
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>While MR would reduce overall levels of access this area is not known to be extensively visited by coastal users for traversing north-south.</p> <p>The overall effect is therefore considered to be minor negative</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.10 Assessment table for preferred policy options: MIN 13.1 – 13.3

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Minsmere Walberswick Heaths & Marshes, Leiston/Aldeburgh, Sizewell Marshes SSSI, Minsmere Walberswick Ramsar/SPA, Sandlings SPA and Minsmere Walberswick Heaths and Marshes SAC. Policy seeks allow a natural evolution of the coastline whilst maintaining the power station. Therefore deemed a minor positive benefit.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policies in this area promote the natural evolution of this frontage with no adverse effect on integrity. The overall effect is therefore neutral.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Floodplain and Grazing Marsh, Lowland Dry Acid Grassland, Coastal Vegetated Shingle, Saline Lowland Heathland and Coastal Cliffs & Slopes. The management area promotes a natural development of the coast. With the exception of the power station frontage, coastal habitat under the policy will be able to function naturally and roll landwards in response to SLR.  Therefore, the management area is	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		considered to have a minor positive effect on this area.			
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSIs in this management area is designated for acid grassland, open water and shingle, and grazing marsh. The management area provides for a more natural management of this coast which is unconstrained apart from the power station frontage.  Therefore, the management area is considered to have a minor positive effect on this issue.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	<p>The Policy seeks to provide a dynamic coastal system which is underpinned by dynamism and natural coastal evolution whilst maintaining the frontage around the power station. This policy therefore has a minor positive effect.</p> <p>Due to local topography, and the defence around the power station this policy would not lead to any increased risk. The overall effect therefore is neutral</p> <p>The management area will require additional defence works to the rear of the power station (also protecting Sizewell village) and also to the front of the power station. Therefore the cost of this defence is minor negative.</p> <p>The overall intent of the management area is to promote a natural evolution of the coast whilst maintaining the defence of the power station. The overall effect is therefore significant positive.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p> <p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p> <p>Does the policy work with or against natural processes?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p> <p>Projected future risk levels for communities (existing or emerging).</p> <p>Projected figures for anticipated future coastal defence works.</p> <p>Professional expert judgment required on the overall approach to management.</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The management area will not lead to the threat to any aquifers or boreholes. The overall effect is therefore marginal, and considered neutral	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide for the natural development of the coast. Overall the benefits of this are minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The management area will introduce new defences to the rear of the power station, but these are not considered to be detrimental to the landscape in their context adjacent to a nuclear power station. Overall the effect is considered to be neutral.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation. 3. Listed Buildings within the context of historic settlements.	The policy of NAI north of Thorpeness may have an effect on the conservation area however this is considered marginal in this location and the level of erosion expected. The overall effect is therefore neutral.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The area has no listed features and the level of erosion of terrestrial areas is limited. The effect is therefore considered to be neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	The Policy provides for MR, but provides defences for existing settlements at Sizewell. The overall effect is therefore neutral.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		NA.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	No transport routes would be interrupted as a result of this policy, however the power station requires access and this would need to be maintained in the provision of its ongoing defence. The overall effect is therefore neutral.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	No transport routes would be interrupted as a result of this policy, however the power station requires access and this would need to be maintained in the provision of its ongoing defence.  The overall effect is therefore neutral.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The policy would not lead to any loss of continued access along the coast and the effect is therefore neutral.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>The policy will provide for the ongoing and defence of the power plant and the effect is therefore minor positive.</p>	<p>Will SMP policy protect, in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.11 Assessment table for preferred policy options: ALB 14.1 – 14.4

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Leiston/Aldeburgh, Alde-Ore Estuary SSSI, Alde-Ore Estuary Ramsar/SPA, Sandlings SPA and Alde-Ore & Butley Estuaries SAC. Policy seeks allow a natural evolution of the coastline to the north whilst protecting Aldeburgh. The policy also offers a HTL policy at Slaughden which is intended to protect the integrity of the estuary to the rear. The long term defence at Slaughden may prove unsustainable in regard to SLR therefore, overall the policy is considered to be minor negative.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The overall suite of policies provides for the natural evolution of the coast to the north, whilst holding the line at Slaughden in order to maintain the integrity (within a planning timescale) of the estuary to the rear. Holding the line is considered necessary to provide the time for management of the estuary to respond to the eventual breach at Slaughden. The overall effect is therefore considered minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven's SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze	The BAP habitat in this area includes: Reedbeds Coastal Floodplain and Grazing Marsh and Coastal Vegetated Shingle. The management area promotes a natural development of the coast. With the exception of the defence of Aldeburgh and at Slaughden. The MR would lead to a roll back of habitat and the overall effect is therefore considered to be neutral	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSIs in this management area is designated for mudflat, saltmarsh, vegetated shingle, acid grassland and coastal lagoons. The management area provides for a more natural management of the coast to the. North and the protection of the estuary via the defence at Slaughden. It is not considered that this suite of management would not have a negative effect on SSSIs and the overall effect is therefore neutral.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	The Policy seeks to provide a dynamic coastal system which is underpinned by dynamism and natural coastal evolution whilst maintaining the frontage around Aldeburgh and Slaughden. Overall this policy is therefore allowing natural change in part, whilst constraining the coast in the south. The overall effect is considered minor negative.	Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Professional expert judgment required on the overall integrity and balance on the coast	Water Soil Landscape Historic Environment Habitats Species Population Communities
		The policy will not increase flood risk. The overall effect therefore is neutral.	Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	Projected future risk levels for communities (existing or emerging).	
		The management area will require additional defence works adjacent to the MR and also commit to the long term maintenance of Slaughden. Therefore the cost of this defence is minor negative.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The overall intent of the management area is to promote a natural evolution of the coast in the north whilst taking an interventionist approach in the south. The overall effect is therefore minor negative.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The management area will lead to some incursion around the MR, but will protect the integrity of an extensive estuary.  The overall effect is therefore minor positive.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide for the natural development of the coast in the north and maintain major features in the south. Overall the benefits of this are minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The management area will introduce new defences to the rear of the power station, but these are not considered to be detrimental to the landscape in their context adjacent to a nuclear power station. Overall the effect is considered to be neutral.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	The policy HTL at Aldeburgh and NAI on the static shoreline at Thorpeness will protect the conservation areas and listed buildings of both areas. The effect is therefore minor positive.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	The MR policy area has not features of interest listed. The effect is therefore considered to be neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	The Policy provides for the protection of Aldeburgh and Thorpeness and the size and value of both settlements warrants ongoing protection. The overall effect is therefore minor positive.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation.	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		NA.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	No transport routes would be interrupted as a result of this policy. The overall effect is therefore neutral.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	No transport routes would be interrupted as a result of this policy. The overall effect is therefore neutral.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).</p>	<p>All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain</p>	<p>The policy would not lead to any loss of continued access along the coast and the effect is therefore neutral.</p>	<p>Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?</p>	<p>Loss of rights of way routes on the Suffolk coast.</p>	<p>Communities</p>
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA.</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.12 Assessment table for preferred policy options: ORF 15.1 – 15.2

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Alde-Ore Estuary SSSI, Alde-Ore Estuary Ramsar/SPA, Orford Ness and Shingle Street SAC and Alde-Ore & Butley Estuaries SAC. Policy seeks allow a natural evolution of the coastline with the northern section being held in Epoch 1 and then allowed to evolved naturally. The overall intent is to provide a sustainable natural frontage and the overall the policy is considered to be minor positive.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policy of NAI is considered contributory to the natural evolution of the site, which accepts natural changes as a key facet of this dynamic habitat. Therefore the effect is neutral.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Shingle, Mudflat and Saline Lagoons and on the landward side of the estuary some fringing areas of Coastal Floodplain and Grazing Marsh. The management area promotes a natural development of the coast. The shingle ridge will roll back landward at a slow rate, which may lead to the loss of saline lagoons (an ephemeral habitat which are also likely to form again in this area further landward). The overall effect is	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	therefore minor positive. The SSSIs in this management area is designated for mudflat, saltmarsh, vegetated shingle and coastal lagoons. . The management area provides for a more natural management of the coast to the. And the effect on SSSIs therefore minor positive.	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	The Policy seeks to provide a dynamic coastal system which supports the integrity of the estuary and the dynamism of the ness. The overall effect is considered minor positive.	Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Professional expert judgment required on the overall integrity and balance on the coast	Water Soil Landscape Historic Environment Habitats Species Population Communities
		The policy will not increase flood risk. The overall effect therefore is neutral.	Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	Projected future risk levels for communities (existing or emerging).	
		The management area will not require management past the first epoch and therefore the cost of this defence is minor positive.	Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	Projected figures for anticipated future coastal defence works.	
		The overall intent of the management area is to promote a natural evolution of the coast. .The overall effect is therefore minor positive.	Does the policy work with or against natural processes?	Professional expert judgment required on the overall approach to management.	
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The management area will lead to the ongoing stability of the estuarine system and will allow the ness to move naturally. The overall effect is therefore minor positive.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide for the natural development of the ness and will not lead to the human features on the ness being at any significant in the timeline of the plan. Overall the benefits of this are neutral.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		The management area will not lead to any new features. Overall the effect is considered to be neutral.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation. 3. Listed Buildings within the context of historic settlements.	NA	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic features lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	SMP policy in this area is for NAI across all areas and epochs, except for Sudbourne Beach, which is NAI for epoch one.  Sudbourne marshes contains prehistoric, Roman and medieval coastal related sites, while Orford Ness possesses a major group of 20 <sup>th</sup> century military structures.  However, due to the stability in the system, these are not considered to be affected during the lifetime of the plan and the effect is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	NA.  NA.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?  Will SMP policy protect the coastal character of communities which have historically been undefended?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.  Maintenance of the character of undefended settlements	Populations Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	NA.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The policy would not lead to any loss of continued access along the coast and the effect is therefore neutral.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA.</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

Table A2.13 Assessment table for preferred policy options: HOL 16.1 – 16.5

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
<p>The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.</p>	<p>Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.</p>	<p>Designated sites in this management area are Alde-Ore Estuary SSSI, Alde-Ore Estuary Ramsar/SPA, Orfordness and Shingle Street SAC and Alde-Ore &amp; Butley Estuaries SAC. Policy seeks allow natural processes in the north of the area, whilst acknowledging the natural fluctuations which occur at the estuary mouth. The overall intent is to provide some degree of stability to a dynamic system, to allow response to the overall dynamism of the estuary mouth. Holding the Line at East Lane will involve addition of shoreline managing structures (preventing the destabilization of the coast to the north)</p> <p>The policy takes an active approach to managing wider coastal processes; however the degree of management required may not be sustainable in the long term. Overall the policy is considered to be a minor negative.</p>	<p>Will SMP policy provide a sustainable approach to habitat management?</p>	<p>Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.</p>	<p>Habitats Species</p>
<p>Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).</p>	<p>All international sites located in the 1 in 1000 year flood plain.</p>	<p>The policy provides a holding point at East Lane and an MR at the estuary mouth, which are intended to ensure that a degree of balance is maintained within a dynamic context. This option is considered to provide the most robust approach to the management of the international features in this area. The policy includes detail relating to the conditions to support sediment flow etc to prevent any adverse effect on the integrity of the features. The overall effect is considered minor positive.</p>	<p>Will SMP policy have an adverse effect on the integrity of any international sites?</p>	<p>Number of international sites recorded as not meeting conservation objectives for the sites.</p>	<p>Habitats Species</p>
<p>The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.</p>	<p>All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).</p>	<p>The policy seeks to provide the balance between dynamism and overall stability which will encourage the creation of saline lagoons (which may be lost elsewhere in response to loss within a dynamic coastal system in this</p>	<p>Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?</p>	<p>Number of Annex 1 Priority Habitat features not meeting conservation objectives.</p>	<p>Habitats Species</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		frontage). The overall effect is therefore neutral.			
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bavents SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	The policy actively seeks to encourage the conditions for the formation of coastal lagoons. The effect is therefore minor positive.	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Shingle, Mudflat, Coastal Floodplain and Grazing Marsh, Maritime Cliffs & Slopes and Saline Lagoons. The management area promotes a degree of balance to this area, with dynamism and coastal change being framed within a holding point at East Land. The shingle ridge will roll back landward at a rate which is controlled by East Lane. Whilst there may be some transition and exchange between habitat types, the overall effect will be provide a relatively stable provision of BAP habitat. The overall effect is therefore minor positive.	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSIs in this management area is designated for mud flat, saltmarsh, vegetated shingle and coastal lagoons. The management area provides for a balance between static and dynamic habitat, the intent being to provide a longer term degree of stability to shingle frontages north of East Lane. Whilst this may be desirable in terms of overall habitat management, there may be ongoing coastal squeeze issues associated with management leading to sites falling into or remaining in unfavourable condition.  The overall effect on SSSIs therefore neutral or minor negative	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Policy seeks to provide a dynamic coastal system which is framed primarily by a holding point at East Lane. Whilst elements of the coast will function naturally, holding points are required to provide this, as such the coast can only respond in a semi-natural fashion. The overall effect is considered significant negative, however this should be considered in the context of the desire to provide some degree of balance to the dynamics of this area of coastline as whole.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>
		<p>The policy will not increase flood risk. The overall effect therefore is minor positive due to the stability brought to this area of coast.</p>	<p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p>	<p>Projected future risk levels for communities (existing or emerging).</p>	
		<p>The management area will require ongoing management to HTL; the overall effect therefore is minor negative.</p>	<p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Projected figures for anticipated future coastal defence works.</p>	
		<p>The overall intent of the management area is to promote a balance of providing a holding point at East Lane, to offer balance to the coastline to the north. This does require a degree of intervention and the overall effect is therefore minor negative.</p>	<p>Does the policy work with or against natural processes?</p>	<p>Professional expert judgment required on the overall approach to management.</p>	
<p><b>ISSUE - Maintenance of water supply in the coastal zone</b></p>					
<p>Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.</p>	<p>1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.</p>	<p>The management area will lead to the ongoing stability of the coastal system. The overall effect is therefore minor positive.</p>	<p>Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?</p>	<p>1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.</p>	<p>Water</p>
<p><b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b></p>					
<p>The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.</p>	<p>The view of the Suffolk coast.</p>	<p>The management area will provide for a degree of stability to the coast in a dynamic setting, which protect Martello Towers and the settlement at Shingle Street. Although key assets (including historic landscape assets) will be protected, many parts of the remaining coastline will be allowed to naturally</p>	<p>1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?</p>	<p>Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.</p>	<p>Landscape Historic Environment Habitats Communities</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
		<p>evolve. The landscape is one that is dominated by the dynamic nature of the coast and therefore this approach will ensure this dynamism is maintained. Overall the benefits of this are minor positive.</p>			
		<p>The management area will not lead to any new features (East Lane is currently defended). Overall the effect is considered to be neutral.</p>	<p>2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?</p>	<p>Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.</p>	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
<p>The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.</p>	<p>1. Sites and buildings of national and regional historical and architectural significance. 2. Conservation. 3. Listed Buildings within the context of historic settlements.</p>	<p>The policy will provide for the ongoing protection of Martello Towers and the settlement of Shingle Street (SAMs). The benefit is therefore minor positive.</p>	<p>Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?</p>	<p>Number, condition and integrity of listed buildings or historic features lost or impacted by inundation or erosion.</p>	<p>Historic Environment</p>
<p>The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from erosion within the timeline of the SMP</p>	<p>Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.</p>	<p>SMP policy advocates NAI and MR, which has the potential to lead to the loss of heritage assets (including Roman salterns, Roman settlement and Bronze Age barrow cemetery) at Gedgrave, Boyton and Hollesley Marshes. However, on balance and due to the timing of policy and location of assets, the effect is neutral.</p>	<p>Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected.</p>	<p>Number and condition of archaeological features lost to coastal processes prior to survey.</p>	<p>Historic Environment</p>
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
<p>The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.</p>	<p>All major settlements within a 1 in 1000 year flood zone.</p>	<p>The policy will maintain Shingle Street, via an approach of using natural processes with a view to offer a balance of dynamism, whilst offering stability to certain areas. The approach is therefore minor negative, given that the requirement for management (as defined by policy increased over time).</p>	<p>Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?</p>	<p>1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.</p>	<p>Populations Communities</p>
		<p>The policy will maintain the 'living on the edge' character of Shingle Street, by providing for its protection through stability of the system rather than localised defence. The effect is therefore significant positive.</p>	<p>Will SMP policy protect the coastal character of communities which have historically been undefended?</p>	<p>Maintenance of the character of undefended settlements</p>	



ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	NA.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The policy would not lead to any loss of continued access along the coast and the effect is therefore neutral.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.</p>	<p>Sizewell Power station</p>	<p>NA.</p>	<p>Will SMP policy protect in situ, Sizewell Nuclear power station?</p>	<p>Maintenance of Sizewell Power station.</p>	<p>Communities</p>

**Table A2.14 Assessment table for preferred policy options: DEB 17.1 – 17.4**

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Deben Estuary and Bawdsey Cliff SSSI, Deben Estuary Ramsar/SPA.  The policy seeks to provide stability to the estuary mouth, whilst allowing natural processes in the north. The mouth of the estuary has been defended for a considerable period, with estuarine habitat responding to this, with subsequent designation in the lower estuary. Overall the policy is considered to be neutral as a continuation of historic management.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	The policy seeks to provide a degree of stability to the estuary shifting management and the estuary towards a more natural approach/system. The overall effect is therefore minor positive.	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Bawdsey SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Mudflat, Saltmarsh, Reedbeds, Maritime Cliffs and Slopes. The management area promotes a degree of stability to the estuary whilst allowing coastal cliffs in the north to behave naturally. The overall effect is therefore minor positive.	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<p>Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.</p>	<p>All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.</p>	<p>The SSSIs in this management area is designated for geological significance, mudflat and sandbank. The management area provides for a balance between static and dynamic habitat, the intent being to provide a longer term degree of stability to the estuary mouth whilst realigning at the inner estuary. The geological interest at the cliffs is maintained via NAI. The overall effect on SSSIs therefore neutral or minor positive</p>	<p>Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?</p>	<p>Number of SSSI units in unfavourable declining condition as a result of coastal management.</p>	<p>Habitats Species</p>
<p><b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b></p>					
<p><b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b></p>					
<p>The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.</p>	<p>All coastal and estuarine areas of Suffolk</p>	<p>The Policy seeks to provide stability at the estuary mouth in a dynamic context (areas to the north being allowed to evolve naturally). In this context the policy maintains the historic defence of the estuary, but allows natural change to the north, thereby bringing balance to the coast. The overall effect is therefore neutral</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p>	<p>Water Soil Landscape Historic Environment Habitats Species Population Communities</p>
		<p>The policy may lead to a likely increase in flood risk to some properties within the flood zone. The overall effect therefore is minor negative.</p>	<p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p>	<p>Projected future risk levels for communities (existing or emerging).</p>	
		<p>The management area will require ongoing management to HTL; the overall effect therefore is minor negative.</p>	<p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p>	<p>Projected figures for anticipated future coastal defence works.</p>	
		<p>The overall intent of the management area is to promote a balance of providing stability at the estuary mouth and to offer balance with the coastline to the north. This does require a degree of intervention and the overall effect is therefore minor negative.</p>	<p>Does the policy work with or against natural processes?</p>	<p>Professional expert judgment required on the overall approach to management.</p>	
<p><b>ISSUE - Maintenance of water supply in the coastal zone</b></p>					
<p>Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.</p>	<p>1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.</p>	<p>The management area will lead to increased incursion with the estuary which may lead to salinisation of the aquifers. The overall effect is therefore minor negative.</p>	<p>Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?</p>	<p>1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.</p>	<p>Water</p>

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide for a degree of stability to the coast in a dynamic setting. However, the effects of SLR in response to HTL may lead increased risk of flooding two Martello Towers at the southern edge of the estuary mouth. Overall the benefits of this are minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The management area will not lead to any new features. Overall the effect is considered to be neutral.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historic and architectural significance. 2. Conservation. 3. Listed Buildings within the context of historic settlements.	The policy may lead to increased risk flooding of Martello Towers on the Southern bank of the estuary mouth. However, the HTL policy will protect the settlement at Bawdsey Manor (and the Grade 2 listed Lemonary just to the north). The overall effect is therefore neutral.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic assets lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.	No known features on this site. However estuary mouths would be typical for signs of historic development. Since the policy is HTL, the effect is therefore neutral.	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	No key settlements in this area - NA.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		NA.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are maintained, or the actual utility is maintained).	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	NA.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	NA	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The policy would not lead to any loss of continued access along the coast (the viability of the foot ferry will not be compromised) and the effect is therefore neutral.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.	Sizewell Power station	NA.	Will SMP policy protect in situ, Sizewell Nuclear power station?	Maintenance of Sizewell Power station.	Communities

Table A2.15 Assessment table for preferred policy options: DEB 18.1 – FEL 20.1

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
<b>ISSUE - Maintenance and Enhancement of Biodiversity on a Dynamic Coastline</b>					
The interaction between the maintenance of designated freshwater or terrestrial habitat protected by defences and designated coastal habitat seaward of defences.	Locations where freshwater or terrestrial designated habitat lies behind a coastal defence (or maintained semi-natural feature) which is in turn fronted by designated coastal habitat. All examples to be within the 1 in 1000 year coastal flood plain.	Designated sites in this management area are Languard Common SSSI.  The policy seeks to provide HTL for the Felixstowe Frontage, whilst allowing MR adjacent to Languard Common in the south. Overall the policy is considered to be neutral as a continuation of historic management of the Felixstowe area.	Will SMP policy provide a sustainable approach to habitat management?	Number of schemes which address the potential loss or change of terrestrial, freshwater and coastal habitat adjacent to defences or maintained structures.	Habitats Species
Coastal squeeze and changes to coastal processes has the potential to adversely affect the integrity of international sites (Ramsar sites and areas designated under the Habitats and Birds Directives).	All international sites located in the 1 in 1000 year flood plain.	NA	Will SMP policy have an adverse effect on the integrity of any international sites?	Number of international sites recorded as not meeting conservation objectives for the sites.	Habitats Species
The potential loss of Annex I Priority habitat on the Suffolk coast, which may be at risk from natural coastal processes or coastal policy which seeks to protect public health and safety.	All Annex 1 Priority Habitat on the Suffolk coast (only Saline Lagoon habitat is relevant to this area).	NA	Will SMP policy have an adverse effect on the integrity of any Annex 1 Priority Habitat?	Number of Annex 1 Priority Habitat features not meeting conservation objectives.	Habitats Species
New coastal lagoons (EU Annex I habitat) have been created further back from the coast on the Benacre to Eastern Baven SPA. JNCC have recommended that management actions to decrease the rate of erosion should be addressed through the SMP process with rates to enable the sustainable relocation of habitat.	Sites for the creation of coastal lagoons adjacent to Kessingland and land seaward of such sites.	NA	Has SMP policy provided sustainable management for emerging saline lagoon habitat?	Decreased rates of erosion on this frontage - to be agreed.	Habitats
Coastal squeeze has the potential to lead to the loss of UK BAP (priority & broad) coastal habitat. Alternative sites for habitat creation are required to help offset the possible future natural losses.	All UK BAP habitat within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The BAP habitat in this area includes: Coastal Vegetate Shingle and Maritime Cliffs and Slopes. The management area promotes stability to an urbanized frontage whilst allowing natural movement of the southerly edge of the area. Any shifts in BAP habitat would be minor and/or transitional. The overall effect is therefore neutral.	Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	Area of UK BAP habitat loss and created.	Habitats
Coastal squeeze has the potential to lead to coastal SSSIs falling into unfavourable condition. For example, approximately 50 of 100 SSSI units assessed at the Minsmere-Walberswick Heaths and Marshes SSSI are in unfavourable condition, although the majority of these (36) are in an unfavourable recovering	All SSSIs within the 1 in 1000 year flood zone with the potential to be impacted by coastal squeeze.	The SSSIs in this a sand and shingle spit is designated for shingle and associated species. The overall effect of this policy in this area is to allow the foreshore to realign in a managed manner which will not prejudice the features on the site therefore neutral or	Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units which are in unfavourable declining condition (due to coastal management) wherever possible?	Number of SSSI units in unfavourable declining condition as a result of coastal management.	Habitats Species

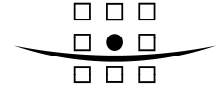


ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
condition. Factors attributable to the unfavourable declining condition relating to the SMP, are cited as coastal squeeze.		minor positive			
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>					
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>					
The Suffolk coast is a complex system of dynamic and static shingle, beach frontages, urban areas and estuary mouths. The system has been maintained in recent years to provide relative stability to the system in order to protect coastal assets. The effects of sea level rise require a more strategic approach to shoreline management, but the relative stability of the plan area needs to be maintained albeit within a dynamic context.	All coastal and estuarine areas of Suffolk	<p>The Policy seeks to provide maintained defence of a large urban frontage. In the wider context, a balanced approach of holding key areas is supported by this approach in this location. The overall effect is therefore minor positive.</p> <p>The policy will provide continued defence of existing defended frontage. The overall effect therefore is minor positive.</p> <p>The management area will require ongoing management to HTL; the overall effect therefore is minor negative.</p> <p>The overall intent of the management area is to promote a balance of providing stability along the Felixstowe frontage and to offer balance with the coastline to the south. This does require a degree of intervention and the overall effect is therefore minor negative.</p>	<p>Will SMP policy maintain an overall level of balance across the Suffolk coast in regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?</p> <p>Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?</p> <p>Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?</p> <p>Does the policy work with or against natural processes?</p>	<p>Professional expert judgment required on the overall integrity and balance on the coast</p> <p>Projected future risk levels for communities (existing or emerging).</p> <p>Projected figures for anticipated future coastal defence works.</p> <p>Professional expert judgment required on the overall approach to management.</p>	<p>Water</p> <p>Soil</p> <p>Landscape</p> <p>Historic Environment</p> <p>Habitats</p> <p>Species</p> <p>Population</p> <p>Communities</p>
<b>ISSUE - Maintenance of water supply in the coastal zone</b>					
Agriculture on the Suffolk coast is dependent on the maintenance of a freshwater supply from groundwater aquifers. The delivery of this supply is threatened by intrusion of salt water into freshwater aquifers and from the loss of boreholes at risk from erosion.	1. Freshwater aquifers within the 1 in 1000 year flood plain 2. Boreholes considered at risk from coastal erosion.	The management area will maintain the existing infrastructure and the integrity of aquifers. The overall effect is therefore minor positive.	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	1. Number of boreholes on the Suffolk coast lost to erosion. 2. Changes of salinity in the freshwater aquifer attributable to SMP policy.	Water
<b>ISSUE - Maintenance of the vales of the coastal landscape &amp; Area of Outstanding Natural Beauty (AONB)</b>					

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
The maintenance of the coastal landscape in the face of coastal change on a dynamic coast and estuary system. A key factor being the potential change in the landscape in response to shifts in coastal habitat composition and form.	The view of the Suffolk coast.	The management area will provide ongoing protection for Lowestoft and all the features it contains. Overall the benefits of this are minor positive.	1 Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	Within the context of a naturally evolving coastline, the maintenance of relative proportions and diversity of the key features (social, historic and natural) in the Suffolk coastal landscape.	Landscape Historic Environment Habitats Communities
		The management area will not lead to any new features. Overall the effect is considered to be neutral.	2 Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?	Number of introduced features (as a result of SMP policy) which are out of character with the local landscape.	
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>					
The Suffolk coast contains a range of historic settlements and harbours typically located on the open coast and mouths of estuaries (for example, Southwold - Walberswick, Aldeburgh, Shingle Street etc). These settlements may be at higher levels of risk from coastal flooding as a result of climate change or levels of erosions along the coast.	1. Sites and buildings of national and regional historical and architectural significance. 2 Conservation 3. Listed Buildings within the context of historic settlements.	Landguard Common lies entirely within the designated area of Landguard Fort scheduled monument, which will be subject to MR. This is therefore scored as minor negative.	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Number, condition and integrity of listed buildings or historic features lost or impacted by inundation or erosion.	Historic Environment
The coastal zone in Suffolk contains a range of archaeological and palaeo-environmental features which may be at risk from loss from erosion within the timeline of the SMP	Features listed of being of archaeological significance in the Suffolk Rapid Coastal Zone Assessment.		Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected.	Number and condition of archaeological features lost to coastal processes prior to survey.	Historic Environment
<b>ISSUE - Protection of coastal communities and culture</b>					
<b>Protection of coastal towns and settlements</b>					
The Core Strategies of Waveney Council and Suffolk Coastal District Council identify key coastal settlements which are important to the quality of life locally and the integrity of the economy of the area. These settlements are likely to face a higher level of risk from coastal flooding and loss due to erosion in response to sea level rise. There is a need therefore to ensure that the settlements below are protected for the duration of the SMP. The settlements are listed in Section 3.4.4.	All major settlements within a 1 in 1000 year flood zone.	No key settlements in this area - NA.	Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	1. Maintenance of key coastal communities. 2. Provision of appropriate standard of protection for key coastal communities. 3 Number of new developments located in unsustainable coastal locations.	Populations Communities
		NA.	Will SMP policy protect the coastal character of communities which have historically been undefended?	Maintenance of the character of undefended settlements	
Coastal communities in Suffolk may be dependent on key features which are located outside of the settlement area (for example the relationship of Southwold Harbour (on the Blythe Estuary) to the economy of Southwold). There is a need therefore to ensure that features which support communities are	Features which are essential to the sustainability and quality of life of coastal communities.	Not applicable in this area.	Will SMP policy maintain the form or function of features located outside of established settlements, which are essential to the economy and quality of life of key coastal settlements?	Maintenance of key features* located outside or key coastal settlements or maintenance of the function or utility of such features. *Features essential for the sustainability or quality of life of key coastal communities.	Communities

ISSUE	SCOPED IN	DETERMINATION	ASSESSMENT CRITERIA	INDICATOR	RECEPTORS
maintained, or the actual utility is maintained).					
<b>Protection of key coastal infrastructure</b>					
The Suffolk coast is served by a network of roads along the coast (primarily the A12) and a network of smaller roads to coastal settlements. The maintenance of these roads is important in regard to the utility it provides for the coastal economy and quality of life etc. The roads themselves are of secondary importance (they could be replaced), the important feature is the actual access provided as a social and economic function. The potential exists for this network to be affected by coastal processes.	All roads within the 1 in 1000 year floodplain	The policy would defend existing infrastructure therefore, the effect is minor positive.	Will SMP policy maintain road based transport connectivity between settlements on the Suffolk coast?	Loss of any major route to coastal settlements on the Suffolk coast.	Communities
The Suffolk coast is served by rail network primarily links Lowestoft and Felixstowe with the national rail network. The network is critical to the functionality of the ports at these centres, supports commuting to London and tourism and runs through the 1 in 1000 year floodplain. The potential exists for areas of the network to be impacted by coastal processes at Felixstowe (adjacent to the port) and Lowestoft (at Oulton Broad).	All rail links within the 1 in 1000 floodplain	The policy would defend existing infrastructure therefore, the effect is minor positive.	Will SMP policy maintain rail based transport connectivity between the Suffolk coast and the national rail network?	Loss of any active rail links on the Suffolk coast.	Communities
The Suffolk coast is visited by a large number of tourists and residents every year. Access to and along the coast is provided by a range of coastal footpaths (the primary footpath being the Suffolk Coasts and Heaths Footpath). The provision of this access, rather than the actual footpaths themselves supports a range of values which contribute to the quality of life and local economy of the Suffolk coastal area. Paths are often located close to the foreshore in areas at risk from coastal erosion (or within potential areas for managed realignment).	All footpaths which contribute to coastal or foreshore access the 1 in 1000 year floodplain	The policy would not lead to any loss of continued access along the coast and the effect is therefore neutral.	Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	Loss of rights of way routes on the Suffolk coast.	Communities
The nuclear power station at Sizewell is located close to the foreshore. The protection of the power station in situ is important in the national interest and essential for the protection of the environment from contamination.	Sizewell Power station	NA.	Will SMP policy protect in situ, Sizewell Nuclear power station?	Maintenance of Sizewell Power station.	Communities





**ROYAL HASKONING**

## **Appendix F Strategic Environmental Assessment**

### **B) Statement of Environmental Particulars**

# Statement of Environmental Particulars for the Suffolk Shoreline Management Plan 2

Issued 11 January 2011

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## **Section 1 – Introduction**

This Statement of Environmental Particulars (SoEP) indicates how environmental considerations, and the views of consultees and interested parties, were taken into account during the preparation of the second Shoreline Management Plan (SMP) for Suffolk. It explains how Suffolk Coastal District Council and the Client Steering Group (the Environment Agency, Waveney District Council, Suffolk County Council, Natural England and English Heritage) selected the preferred options in the plan.

Several issues have been raised through the consultation on the draft SMP and the accompanying Environmental Report (ER) prepared as part of the Strategic Environmental Assessment (SEA) process. These are addressed in this document and include clarifications on significance thresholds used for the SEA assessment and possible ‘double-counting’.

Although following consultation there have been minor changes to the Water Framework Directive (WFD) report this has not led to any substantive changes in the outcome of the WFD assessment. Therefore there has been no change to the SEA assessment with respect to the WFD criterion.

This statement goes on to set out the procedures that will be established to monitor the significant environmental effects of implementing the plan. In addition, it also provides an overview of the assessment based on the final suite of policies that were agreed post-consultation, and the revised assessment. Further detail is provided for situations where the assessment has been revised, for the criteria affected, in appendix 1. This provides an overall environmental assessment based on the policies in the final plan.

### **Purpose of this SEA Statement of Environmental Particulars**

This SoEP meets a requirement under the Environmental Assessment of Plans and Programmes Regulations 2004<sup>1</sup> (‘The SEA Regulations’). It sets out how the findings of the SEA, and views expressed during the consultation period, have been considered as the Suffolk SMP2 has been finalised.

## **Section 2 – Background**

### **The Suffolk Shoreline Management Plan 2**

A SMP is a large-scale assessment of the risks associated with coastal processes. The Suffolk SMP2 covers around 72 kilometres of coastline, stretching from Lowestoft Ness to Landguard Point, Felixstowe. It aims to reduce the risks to the social, economic, natural and historic environment through effective and sustainable shoreline management.

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<sup>1</sup> SI 1633 2004, which transposes Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment (‘The SEA Directive’) into English law.

The Suffolk coast has a wide variety of environmental assets, including both national and international conservation designations, and landscape designations. It also accommodates an extensive range of commercial, recreational and tourism-based activities. The SMP has sought to achieve a balance between the relevant social, economic and environmental issues, seeking the most beneficial approach overall.

Management units within the SMP are defined according to coastal processes and provide a series of policies for a spatial area. These are described fully in the main SMP2 documents. As the 'building blocks' for the SMP they were considered the most appropriate level for consideration by the SEA. The assessment is therefore provided for the following units:

- LOW (1.1- 4.3)
- KES (5.1-3)
- BEN (6.1-3)
- COV (7.1-2)
- SWD (8.1-3)
- BLY (9.1-5)
- BLY (10.1-3)
- DUN (11.1-4)
- MIN (12.1-4)
- MIN (13.1-3)
- ALB (14.1-4)
- ORF (15.1-2)
- HOL (16.1-5)
- DEB (17.1-4)
- DEB (18.1-2) and FEL (19.1-5 & 20.0-1)

## **Strategic Environmental Assessment**

In order to ensure environmental considerations were integrated throughout the development of the SMP, a non-statutory SEA was undertaken according to usual Environment Agency procedures, and following the requirements of the SEA Regulations. The assessment seeks to ensure that any potentially significant effects of the SMP on the environment are considered throughout its development, and that opportunities for environmental enhancement are identified and realised. It reinforces procedures in the SMP guidance that acknowledge the importance of a range of features assessed by the SEA.

In SEA, and throughout the SMP process, the term 'environment' covers a wide range of issues, broadly encompassed by the following receptors (defined in the SEA Regulations):

- population and communities (including human health, critical infrastructure, etc.)
- cultural heritage, including architectural and archaeological heritage
- material assets
- biodiversity, fauna and flora
- soil
- water
- air
- climatic factors
- landscape.



The SEA process for the Suffolk SMP has included a Scoping Report (circulated to statutory consultees in January 2009) and an Environmental Report (ER) (appendix F of the draft SMP2). Following the consultation on the draft SMP the ER was itself updated into the form which accompanies the published SMP.

As well as this SoEP, and on completion of the SMP2 process, we will produce a post-adoption statement. This will provide details of how to view and obtain copies of all the above documents.

### **Section 3 - Alternatives**

The intention of the SMP is to provide a long-term vision for the management of the coast. The guidance makes it clear that the:

*“distinction between the ‘preferred plan’ and ‘policies’ should also be recognised. The ‘plan’ represents the long-term vision, considering the interactions and implications across the whole SMP and identifies the changes required to achieve that. The ‘policies’ are the means of achieving this plan at the local level over discrete timescales.”*

(Defra 2006, Volume 2: Procedures, p11)

This is combined with the fact that the SMP2 guidance (Defra 2006) provides a limited range of high-level policy options, outlined in table 3.1. The policy options determined are those considered best for delivering the long-term vision, considered appropriate by the Client Steering Group. The strategic vision was determined, in line with the guidance, being mindful of the constraints and opportunities along the Suffolk coast. There are therefore very limited alternatives available without jeopardising the delivery of the preferred vision at the plan (macro) level.

In this SMP the true alternatives exist only at the plan level, being those strategic visions that lie between continued present management and no active intervention. In SEA terms, as the assessment was to a large degree retrospective (see section 4), and no formal assessment of alternatives at the PDZ or management unit level is available. However, further information on policy selection can be found in section 4 of the SMP main document.

**Table 3.1 Options used in SMP development**

<b>SMP option</b>	<b>Description of option</b>
Hold the line (HTL)	Hold the existing defence line by maintaining or changing the standard of protection. This policy will cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on), to improve or maintain the standard of protection provided by the existing defence line. This includes other policies that involve operations to the back of existing defences (such as building secondary flood walls) where they form an essential part of maintaining the current coastal defence system.
Advance the line (ATL)	Advance the existing defence line by building new defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.
Managed realignment (MR)	Managed realignment by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
No active intervention (NAI)	No active intervention, where there is no investment in coastal defences or operations.

## **Section 4 – Integration of environmental considerations**

The decision to provide a stand-alone SEA for the Suffolk SMP was taken after the SMP process began. Up to that point, SMPs had been accompanied by a ‘signposting’ exercise which highlighted where elements of the SMP addressed the requirements of the SEA Regulations.

Accordingly, the use of SEA in developing, refining and selecting the Suffolk SMP2 policies was limited. Nevertheless, the SMP followed the Defra SMP guidelines (Defra, 2006) which are intended to ensure that a consideration of environmental, social and economic factors is central to the development of policy options (this approach reflects the intentions of the SEA Directive and Regulations). Assessment of the preferred options in the SEA ER demonstrated that a balanced approach was taken to selecting the policies with the most beneficial outcomes across the range of ‘environment’ receptors specified (see section 2).

The SEA process has developed two distinct documents: a Scoping Report and an Environmental Report. These are described below.

## **The Scoping Report (January 2009)**

The Scoping Report established an environmental baseline for the coastline of Suffolk, and a framework for assessing the potential impacts and benefits resulting from implementing the SMP policies. These SEA assessment criteria, by which SMP policies could be assessed, were discussed and refined through consultation with statutory consultees. The suite of environmental concerns highlighted and considered through the SEA was:

- threats to biodiversity on a dynamic coast
- threats to the environmental conditions to support biodiversity and the quality of life
- need to maintain a balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths and the implications of sea level rise
- protection of a sustainable water supply in the coastal zone
- threats from development and coastal management on the coastal landscape and AONB
- potential loss of historic and archaeological features on a dynamic coastline
- threats to coastal communities and culture on a dynamic coastline
- protection of coastal towns and settlements
- protection of key coastal infrastructure (roads, bridges etc).

## **The Environmental Report (June 2009)**

Following the Scoping Report (and accompanying internal consultation), the preferred policy options for the Suffolk SMP were assessed in the ER. On the basis of that assessment, the Suffolk SMP was considered to have been successful in considering the range of environmental concerns. The majority of the remaining impacts identified are either minor positive or neutral. While several major positive impacts are likely to result from the adoption of the preferred policies, seven major and several minor negative impacts were identified.

Major negative impacts of the SMP, acknowledged in table 6.5, relate to:

- 1) At East Lane (HOL 16.5) the intention to HTL is regarded as interrupting the natural evolution of the coast to a significant extent
- 2) Adverse effects on the integrity of two internationally-designated sites (through impacts on habitats supporting Special Protection Area<sup>2</sup> (SPA) and Ramsar<sup>3</sup> features) within four assessment areas (BLY 10.1 to 10.3, DUN 11.1 to 11.4, MIN 12.1 to 12.4 and COV 7.1 to 7.2). The designated sites are the Benacre to Easton Bavents SPA and the Minsmere-Walberswick SPA and Ramsar site
- 3) Negative impacts on the fabric and setting of historic listed buildings and conservation areas (DUN 11.1 to 11.4 and MIN 12.1 to 12.4)

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<sup>2</sup> Designated under the Council Directive 2009/147/EC on the conservation of wild birds (the Birds Directive).

<sup>3</sup> Designated under The Convention on Wetlands of International Importance, especially as Waterfowl Habitat

In these instances, negative impacts are anticipated from policies that have been selected in order to maintain wider environmental values.

In addition to these, minor negative impacts have been determined. The more significant of these relate to:

1. Committing future generations to spend more money on defences to maintain the current level of protection (in seven assessment units)
2. Policies that work against natural processes (in five units)
3. Net loss of UK BAP habitat over the timescale of the SMP (in four units)
4. Unsustainable approaches to habitat management (in two units)
5. Policies causing Sites of Special Scientific Interest (SSSI) to fall into unfavourable condition (in two units)
6. Loss of access along the Suffolk coast (in two units)
7. In two units the policies, on balance, work against coastal processes

Despite these effects, the SMP can also be concluded to have provided a range of positive environmental benefits. The major positive impacts that were identified relate to:

1. Policies that enable natural development of the coast and promote sustainable approaches to habitat management. This includes not defending unsustainable habitats (3 units)
2. Policies which accept dynamic coastal change and are in balance with natural coastal processes, while allowing for the appropriate defence of established settlements and infrastructure (5 units)
3. Reduction in the amount required for future defence works through MR policies (1 unit)
4. Implementation of policies that work with natural processes (3 units)
5. Providing protection to historically undefended communities through stability of the natural system rather than localised defences (1 unit)

Where negative impacts have been identified, monitoring has been devised to assess these impacts and determine necessary mitigation. Some of the negative impacts could also be avoided/reduced by scheme level mitigation. A summary of findings is given in table 6.4, while monitoring is outlined in section 7.

## **Section 5 – Influence of the Environmental Report**

As described previously, because the SMP was progressed in advance of the SEA, it cannot be demonstrated that the SEA influenced the development of SMP policies. However, the consideration of environmental factors has played a crucial role in developing the SMP, as documented in appendix G of the SMP – Scenario testing. This consideration of environmental factors was based on adherence to SMP guidance, and has previously been considered sufficient to meet the requirements of the SEA Regulations. The

environmental elements of the SMP process (such as the features, issues and objectives and scenario testing) had full regard to how the policies may affect environmental 'receptors'. This process informed the development of the SMP. Although the ER also followed this process, it confirms that the SMP achieved its intentions. It further confirms that the Suffolk SMP delivers a range of environmental benefits as well as the negative effects identified in section 4. Consideration of environmental issues can therefore be shown to have influenced the development of SMP policies.

The mitigation and monitoring required, based on the conclusions of the Environmental Report and policy appraisal, is discussed in section 7. It should be noted that further assessment of environmental impacts and habitat regulation assessments will be carried out at strategy and scheme level as the intentions of the SMP are delivered. The monitoring and mitigation requirements will be reviewed as part of the next review of the shoreline management plan (SMP3).

## **Section 6 – Consultation**

### **SEA Scoping Report**

The Scoping Report underwent a four-week consultation with the Environment Agency, Natural England, English Heritage, Suffolk Coastal District Council, Waveney District Council and Suffolk County Council between 13 January and 10 February 2009.

A SEA workshop was also held, attended by representatives from Suffolk Coastal District Council, the Environment Agency, Natural England, English Heritage and Royal Haskoning. The discussion mirrored comments that were previously received and focussed on ensuring that the assessment criteria were more specific to:

- the range of designated sites and habitats under UK and environmental legislation
- the range of heritage features that should form the basis of any assessment.

Changes to the assessment criteria resulting from consultation ensured that ecological and historic environment features were assessed in an appropriate manner and to a consistent level of detail. In addition, the consultation process provided the opportunity to scope out the following two receptors. Although defined in SI 1633, they were considered not to be relevant to this assessment due to the intangible manner in which SMP policies could influence them:

- climatic factors
- air.

## SEA Environmental Report

The Environmental Report underwent a three-month public consultation period from 1 July 2009 to 30 September, as part of the public consultation for the draft SMP. Table 6.2 outlines the comments received about the Environmental Report and subsequent actions taken to respond to them.

**Table 6.2 Consultation responses and actions for the Environmental Report**

Organisation	Response	Action/Comment
Suffolk County Council	<p>The County Council's view is that it is inaccurate for the SMP to state that the proposed policies will be positive for the environment overall (Strategic Environmental Assessment, page 55). Parts of the designated AONB will be lost or changed forever. Freshwater habitats and agricultural land will be lost (or devalued by saltwater intrusion), small isolated communities will be more at risk and the visual appearance of the coast will change. These are all part of the environment and landscape and the reasons behind the AONB designation.</p>	<p>Despite some areas of the AONB, and some habitats, potentially being lost, the overall effect of the SMP (on balance) was assessed as positive.</p> <p>The SMP was developed (with stakeholders) to offer a plan that enabled the character of the Suffolk coastal environment to be maintained (protecting some areas and enabling the natural development of the coast in others). Within the assessment it was acknowledged that this dynamic nature (which is important to character and ecology) may result in some features being lost</p> <p>The SEA has been undertaken in consultation with all appropriate bodies. The SEA is set out in a transparent manner so that the rationale behind all conclusions is clear and open.</p> <p>An alternative position, defending the entire coast, would jeopardise the dynamic nature of the coast and result in habitat loss. A negative score would then be more appropriate.</p> <p>No change made to ER.</p>
	<p>As a high level strategy the SMP identifies and gives some consideration to designated scheduled monuments, but there is no attempt to assess these monuments in their landscape setting or in relation to each other or to other less significant historic</p>	<p>Following consultation, text was added to a revised version of the ER (sections 3.2 and 3.3), highlighting the importance of the landscape importance of historic environment features. This was discussed with English Heritage and Suffolk County Council</p>

Organisation	Response	Action/Comment
	<p>assets. Although the coastal grazing marshes are an essentially artificial landscape their significance as such seems not to be considered. For example, the landscape loss of Leiston first abbey is seen in landscape terms as the loss of a single 'small chapel' (SEA, 5.4.4) ignoring the relationship of the abbey site on its island with adjacent early reclaimed marshland.</p>	<p>officers, and English Heritage joined the CSG through the later stages of the SMP process.</p>
	<p>The County Council feels the SEA scoring system needs to be challenged with regard to the assessment of the historical environment. Within the document the destruction of regionally important assets has been allocated as a "minor positive" outcome. This is at odds to other similar assessments of our built Heritage.</p>	<p>As above, the SMP was developed (with stakeholders) to offer a plan that enabled the character of the Suffolk coastal environment to be maintained (protecting some areas and enabling the natural development of the coast in others). Within the assessment it was acknowledged that this dynamic nature (which is important to character and ecology) may result in some features being lost. The SEA is set out in a transparent manner so that the rationale behind all conclusions is clear and Where a policy takes an active approach to provide additional long-term protection for historic assets, but may lead to the loss of a singular asset, the overall effect is considered positive.</p> <p>No action taken to change the ER.</p>
	<p>PDZ3/PDZ4: At Dunwich there is a major omission in the Strategic Environmental Assessment as the nationally important Greyfriars Monastery has been completely omitted, falling as it does just south of the PDZ3/PDZ4 line. The text refers to it (PDZ3:32) but only in terms of the upstanding ruin rather than the site as a whole. The estimated cost for full recording by excavation of this site was estimated at £1million, 10 years ago.</p>	<p>Noted. The PDZ boundary line has been moved to reflect that Greyfriars priory lies within the area of the village (figures in PDZ3 and PDZ4).</p>

Organisation	Response	Action/Comment
<p><b>English Heritage</b></p>	<p>There ought to be reference that, whilst designated historic assets provide an indication of the significance of historic environment along the coastline, many important archaeological features are not designated in the inter-tidal zone due to the dynamic setting. Similarly there is likely to be unknown and therefore undesignated archaeological sites in the area. The data in the SEA thus provides a guide, but is not comprehensive.</p>	<p>Post-consultation, a revised version of the ER was produced (and accompanies the final version of the SMP). Text in section 3.3 highlights the importance of undesignated historic environment features and archaeological sites.</p>
	<p>Whilst the losses of the Hospital of the Holy Trinity and Leiston Abbey are mentioned, there is no discussion of the village of Covehithe. All these losses are of great concern to English Heritage, since mitigation is never as good as preservation.</p>	<p>Text in section 5.4.5 of the revised ER highlights the importance of Covehithe.</p>
	<p>Like Section 5.4.5, this section also over-relies on reference to Scheduled Monuments when identifying likely major losses. We feel it is essential that the loss of Covehithe, and numerous significant but undesignated historic assets (notably, inter-tidal archaeology) is also flagged. It is, however, appreciated that the issue of funding has been raised in this part of the report.</p>	<p>Text in section 5.4.6 of the revised ER highlights the importance of Covehithe and undesignated historic assets.</p>
	<p>Table A2.6 The gradual/natural approach to realignment should, at best, be regarded as having a neutral impact upon the historic environment – due to provision of adequate time for mitigation. The presence of time does not convert the loss of historic assets into a positive or minor positive, as losses to the historic environment can never be fully overcome by mitigation. Indeed it states in the draft PPS15 in Policy HE13.1 that a documentary record is not as valuable as retaining the asset.</p>	<p>While it is acknowledged that losses of historic environment features are not positive, it is felt that, in the context of the high-level SMP, the assessment for key historic features and conservation areas still applies. A reassessment of the criteria for archaeological and paleo-environmental features has been assessed minor positive to neutral.</p>



The SEA did not identify any significant environmental effects that required transboundary consultation and no such consultation responses were received.

The overall SMP consultation and stakeholder engagement process is described in the SMP's appendix B - Stakeholder Engagement. The draft SMP consultation is presented in more detail in the public consultation report published in October 2010.

### Policy changes

Following the consultation on the draft SMP, one of the preferred policies was altered to reflect the responses received. This new policy has been reassessed against the SEA criteria and the appraisal tables have been updated. Table 6.3 details the changes to the preferred policies following consultation. A table giving details of the units and criteria where the assessment has been revised is supplied as appendix 1.

**Table 6.3 Changes to preferred policies following consultation**

Policy Development Unit	Original preferred policy			New preferred policy		
	to 2025	2025 to 2055	2055 to 2105	to 2025	2025 to 2055	2055 to 2105
<b>COV 7.2 Easton Broad</b>	NAI	NAI	NAI	<b>MR</b>	NAI	NAI

The change in policy from NAI to MR in policy unit COV 7.2 only has implications for the impact on the Benacre to Easton Bavents SPA. The new policy recognises that in the short term there is a need to manage the designated reedbed habitat (which supports SPA features) within Easton Broad to prevent deterioration before compensatory habitat for the SPA features is functional. With the revised policy approach, no adverse effect on the Annex 1 habitat (reedbed) is now expected in the first epoch.

### Additional issues

As well as addressing comments on the historic environment (which were picked up in the revised ER), and the reassessment following the policy change above, additional queries have been raised about significance thresholds used in the assessment, and about the potential for double-counting between assessment criteria. These points are addressed below.

### **Clarification of significance criteria**

In response to the SEA ER, comments were received about clarification of the significance criteria used in the assessment. The considerations below are paramount in determining environmental effects and likely significance:

#### **Assessing the significance of effects**

- Value and sensitivity of the receptors
- Is the effect permanent / temporary?
- Is the effect positive / negative?
- Is the effect probable / improbable?
- Is the effect frequent / rare?
- Is the effect direct / indirect?
- Will there be secondary, cumulative and / or synergistic effects?

Table 6.4 further summarises how the significance of each effect was established for the assessment criteria. An explanation of how significance was established needs explaining within the SMP context. SMP policies only provide a direction for management (the details are provided at the scheme level), and the timeline of the plan is extremely long (approaching 100 years).

The SMP also deals with dynamic coastal areas, where receptors are subject to a range of human and natural processes and levels of change. The impacts of management direction on receptors are therefore often subject to a high degree of uncertainty and this is acknowledged in the scoring. Where gaps in knowledge exist (relating to the information required to support an assessment of the link between policy and receptor), expert judgement is used or a decision of unquantifiable effect recorded.

**Table 6.4 Significance determination for SEA assessment criteria**

The assessment is based on a guiding principle of scoring minor positive or negative if the effect of a ‘policy’ is only realised as a result of sea-level rise (ie ongoing background change rather than more definitive or active management intervention). This underpins many of significance decisions in this assessment. This principle should be considered a central consideration throughout the assessment, and is not repeated in the explanations that follow.

Assessment criterion	How the significance of SMP effects was established
<b>ISSUE - Maintenance and enhancement of biodiversity on a dynamic coastline</b>	
Will SMP policy provide a sustainable approach to habitat management?	Where SMP policy would enable the development of a natural mosaic of coastal habitat, a positive score would be provided. If the policy provides for a shift in management (from the present position) that would actively enable a more natural development of coastal habitat, a major positive score would be provided. Where the effects of policy would provide for a continuation of management that supports the development of natural coastal habitat, a minor positive score would be provided. Negative scores would be provided for ongoing management that prevents the development of a range of coastal habitat (minor negative) or provides for a shift in management that would not work with coastal processes and prevent the development of coastal habitat (major negative).
Will SMP policy have an adverse effect on the integrity of any international sites?	If the effect of a policy would lead to an adverse effect on an international site (as defined through the statutory HRA), a major negative score would be provided. A minor negative score would be provided if the effects of policy would not prevent an adverse effect from occurring based on impacts of coastal processes or sea level rise. Minor positive scores would be provided where the effects of policy would prevent an adverse effect from occurring through maintaining an existing policy position or coastal process trend. The provision of a new management position (for example from HTL to MR) to avoid an adverse effect would provide a major positive score. <i>This assessment must consider the potential for double-counting with other biodiversity criteria.</i>
Will SMP policy have an adverse effect on the integrity of any Annex 1 priority habitat?	If the effect of a policy would lead to an adverse effect on Annex 1 priority habitat (defined through a statutory HRA), a major negative score would be provided. A minor negative score would be provided if the effects of policy would not prevent an adverse effect from occurring based on impacts of coastal processes or sea level rise. Minor positive scores would be provided where the effects of policy would prevent an adverse effect from occurring through maintaining an existing policy position or coastal process trend. The provision of a new management position (for example from HTL to MR) to avoid an adverse effect would provide a major positive score. <i>This assessment must consider the potential for double-counting with other biodiversity criteria.</i>

Assessment criterion	How the significance of SMP effects was established
Has SMP policy provided sustainable management for emerging saline lagoon habitat?	If the policy provides for a shift in management (from the present position) that would actively enable development of saline lagoon habitat, a major positive score would be provided. Where the effects of policy would provide for a continuation of management that supports the development of a saline lagoon habitat, a minor positive score would be provided. Negative scores would be provided for ongoing management that prevents the development of saline lagoon habitat (minor negative) or provides for a shift in management that would not work with coastal processes and prevent the development of saline lagoon habitat (major negative). <i>This assessment must consider the potential for double-counting with other biodiversity criteria.</i>
Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	The principle guiding the assessment is one of no overall net loss of BAP habitat. Where there is no net loss of BAP habitat, scores would be provided as positive based on the degree to which policy maintains a natural balance of BAP habitat in a dynamic context. Major or minor negative scores would be provided where the effects of policy would lead to a loss of BAP habitat (the actual determination of major or minor is based on the extent of loss, considered within the context of the overall extent of habitat in the system).
Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units that are in unfavourable declining condition (due to coastal management) wherever possible?	For SSSIs, the same principles apply as for UK BAP habitats. However, due to the nature of management obligations under the CRoW Act, major negative scores would only be provided where the effects of policy would cause a site to move into unfavourable condition.
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>	
Will SMP policy maintain an overall level of balance across the Suffolk coast with regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	Where SMP policy would enable natural coastal processes, a positive score would be provided. If the policy provides for a shift in management (from the present position) that would actively enable a more natural development of the coast, a major positive score would be provided. Where the effects of policy would provide for a continuation of management that supports coastal processes, a minor positive score would be provided. Negative scores would be provided for ongoing management that prevents the development of natural coastal processes (minor negative) or provides for a shift in management that would not work with coastal processes (major negative).

<b>Assessment criterion</b>	<b>How the significance of SMP effects was established</b>
Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	If the policy provides for an enhanced level of protection (in real terms, in addition to sea level rise), a major positive score would be provided. If the policy maintains the existing level of defence (in the face of sea level rise), a minor positive score would be provided. If the policy would reduce the level of defence, a negative score would be provided. The extent to which the negative extent would be determined as minor or major would depend on whether there would be a need for properties to be relocated (major negative) or if properties would be maintained at a lower level of overall protection (minor).
Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	A decision has been taken in relation to the likely future financial burden, qualitatively assessed against the current burden. If policy will increase the burden then negative scores would be provided, while decreasing the burden would lead to positive scores being provided.
Does the policy work with or against natural processes?	Where SMP policy would enable natural coastal processes, a positive score would be provided. If the policy provides for a shift in management (from the present position) that would actively enable a more natural development of the coast, a major positive score would be provided. Where the effects of policy would provide for a continuation of management that supports coastal processes, a minor positive score would be provided. Negative scores would be provided for ongoing management that prevents the development of natural coastal processes (minor negative) or provides for a shift in management that would not work with coastal processes (major negative).
<b>ISSUE - Maintenance of water supply in the coastal zone</b>	
Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	Where SMP policy would maintain the present abstraction infrastructure, a minor positive score would be provided. Where the policy provides for enhanced levels of protection for abstraction infrastructure (which may come under threat from erosion or sea level rise), a major positive score may be provided. Typically however, SMP policy seeks to maintain such features by holding existing lines, possibly requiring improvement to defences (to address sea level rise). Under such a scenario a minor positive score would be provided. Where abstraction infrastructure would be lost as a result of policy, the determination would consider whether the entire function of the abstraction infrastructure would be lost (major negative) or whether it could be maintained by providing an amended abstraction point in a more landward position (minor negative).
<b>ISSUE - Maintenance of the vales of the coastal landscape and Area of Outstanding Natural Beauty (AONB)</b>	
Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	In establishing the effects on the coastal landscape, considerations are based on the maintenance or loss of key features that contribute to the landscape and the need to ensure that the dynamic behaviour of the coast is maintained. Where a policy would lead to the loss of significant features within the coastal landscape, a major or minor negative score would be provided, depending on the extent of the effects of such a loss. Where policy would enable the coast to function 'naturally' (as above) or would enable key features to be maintained, the policy would be

Assessment criterion	How the significance of SMP effects was established
	minor positive. A major positive score would be provided where the effects of policy lead to the maintenance of features or processes that actively contribute to the coastal landscape.
Will SMP policy lead to the introduction of features that are unsympathetic towards the character of the landscape?	If policy led to the removal of unsympathetic features, a positive score would be recorded. The introduction of features that lead to a reduction in the character of the landscape would provide negative scores. If the landscape character is maintained, the score would be neutral. <i>This assessment must consider the potential for double-counting with the criterion above.</i>
<b>ISSUE - Potential loss of historic and archaeological features on a dynamic coastline</b>	
Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Where policy would lead to the loss of a designated historic asset (defined in the main report), a negative score would be provided. A major negative score would be provided if the effect of policy would be to actively shape management in a new direction leading to such a loss. A minor negative score would be provided for the loss of assets in locations where defence may not be sustainable, or where previous management practice is maintained that may lead to the loss of assets that have come under threat. Minor positive scores would be provided for policy that protects assets as a continuation of management in response to sea level rise. Major positive scores would be provided for new management directions specifically to protect historic assets.
Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	Where policy would lead to the loss of areas where archaeological assets are considered likely, a negative score would be provided. A major negative score would be provided if the effect of policy would be to actively shape management in a new direction leading to such a loss. A minor negative score would be provided for the loss of areas where archaeological assets are considered likely in locations where defence may not be sustainable, or where previous management practice is maintained that may lead to the loss of such areas that have come under threat. Minor positive scores would be provided for policy that protects areas where archaeological assets are considered likely as a continuation of management in response to sea level rise. Major positive scores would be provided for new management directions specifically protecting areas where assets are considered likely.
<b>ISSUE - Protection of coastal communities and culture</b>	
Protection of coastal towns and settlements	
Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	The assessment here is underpinned by the guiding principle outlined above. Major scores (either positive or negative) would be provided where the effect of policy would be either to enhance or reduce the actual level of protection offered, accounting for sea level rise. Minor positive scores would be provided where the policy maintains the level of defence, by increasing the actual defence offered by sea walls to account for sea level rise. This is considered a minor positive rather than a neutral effect since, as a result of policy, actions would follow to maintain levels of defence for coastal communities.

Assessment criterion	How the significance of SMP effects was established
Will SMP policy protect the 'coastal character' of communities that have historically been undefended?	Where relevant, policy driven by this would be scored major positive. Where character is maintained as a result of the preferred policy, the score would be minor positive to neutral. Negative scores would be recorded where the character is not maintained according to the scale of loss.
Will SMP policy maintain the form or function of features located outside established settlements that are essential to the economy and quality of life of key coastal settlements?	Where key features are maintained, a minor positive score would be provided if policy maintains this protection in response to sea level rise. If the plan provides for additional levels of protection, a major positive score would be provided. Losses would be scored as minor negative if the features lost would still maintain the overall function of such features, or major negative if the loss would lead to a substantive reduction on the function of such features in that area.
<b>Protection of key coastal infrastructure</b>	
Will SMP policy maintain road-based transport connectivity between settlements on the Suffolk coast?	Where SMP policy would maintain the presence of a road, a minor positive score would be provided. Where the policy provides for enhanced levels of protection for a road (which may come under threat from erosion or sea level rise), a major positive score may be provided. Typically however, SMP policy seeks to maintain such features by holding existing lines, possibly requiring improvement to defences (to address sea level rise). Under such a scenario a minor positive score would be provided. Where a road would be lost as a result of policy, the determination would consider whether the entire function of the road would be lost (major negative) or whether it could be maintained by providing an amended route (minor negative).
Will SMP policy maintain rail-based transport connectivity between the Suffolk coast and the national rail network?	The same principle as roads above.
Will SMP policy maintain or enhance levels of access along or to the Suffolk coast and estuaries?	The same principle as roads above.
Will SMP policy protect Sizewell nuclear power station in situ?	The same principle as roads above.

## **Assessment of the potential for double-counting in the SEA assessment of policies**

A particular comment was received about the potential for the SEA assessment to have been influenced to a degree by double-counting between assessment criteria.

We have reviewed this and consider that there was the potential for double-counting between three of the biodiversity criteria. The two landscape criteria also address similar, although distinctly different, issues. Assessment criteria were devised for specific aspects of the environment and a primary consideration was removing criteria that address exactly the same feature.

The assessment criteria were agreed with the CSG, EA and consultees. There may be some degree of overlap between the criteria, but it is considered that they have been refined to a level that offers meaningful assessment without becoming overly generic. They have been interpreted carefully to ensure there is no double-counting and that the criteria are independent of each other (that is, a score for one criterion does not also determine the score for another), where they are potentially linked.

In particular, the assessment criteria for biodiversity considered impacts on different receptors, as below:

- Will SMP policy provide a sustainable approach to habitat management?  
*Overarching criterion addressing designated and non-designated habitats throughout the plan area.*
- Will SMP policy have an adverse effect on the integrity of any international sites?  
*Due to the nature of the features of sites along the Suffolk coast, with some ephemeral habitats such as saline lagoons, it is possible that habitats might be affected without undermining the integrity of the site. This criterion translates the findings of the statutory HRA.*
- Will SMP policy have an adverse effect on the integrity of any Annex 1 priority habitat?  
*Addresses the point above, identifying where there may be impacts to current ephemeral habitats but the conditions for their re-creation are enabled. There is therefore an impact on the designated features but not on the integrity of the sites. This criterion was interpreted in terms of non-saline lagoon habitats (for example, coastal vegetated shingle).*
- Has SMP policy provided sustainable management for emerging saline lagoon habitat?  
*Specific criterion linked to the one above (Annex 1 habitats), addressing impacts only on saline lagoon habitat/management.*
- Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?  
*The approach considered across our SMPs is that the replacement of one UK BAP habitat with another does not represent a negative impact since 'all habitats are considered equal in value'. It should be noted that UK BAP habitat underpins some designated areas, but that such*



*assets have value within each receptor (since their various designations relate to, and achieve, different things).*

- Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units that are in unfavourable declining condition (due to coastal management) wherever possible?

*As with UK BAP habitat, SSSIs underpin internationally-designated areas. However, the SSSI features are not always the same and even common assets have different 'value' since their designations relate to, and achieve, different things).*

An example is within the Minsmere Walberswick Ramsar/SPA site where site integrity is jeopardised due to the loss of reedbed habitat supporting SPA and Ramsar designated bird species. Despite this, the management approach adopted maintains the longer-term sustainability of the area. No Annex 1 habitats are affected and saline lagoons are not present. The transition of BAP habitat from coastal floodplain grazing marsh to saltmarsh is considered to be equal under a no net loss approach. In terms of the SSSI, although designated habitat will be affected, the overall policy is considered beneficial to the ongoing maintenance of the site.

Landscape assessment criteria also considered impacts on different receptors, as below:

- Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?

*This criterion considers existing features which contribute to the landscape value of the coast. If these are maintained then the outcome of the assessment is positive while if they are lost then it would be negative.*

- Will SMP policy lead to the introduction of features which are unsympathetic towards the character of the landscape?

*This criterion considers new features that would be detrimental to the quality of the landscape. Therefore if such features are to be introduced then the assessment would be negative, while guiding the introduction of 'sensitive' new assets would be scored positively. Maintaining existing assets and their landscape impact is addressed through the previous criterion although removal of any detrimental current assets would contribute to a positive score here.*

## Final reassessment of policy and overall conclusions

Table 6.5 summarises the SEA assessment of the finalised policy suite. Assessments where an impact has changed compared with the assessment accompanying the consultation draft of the SMP are indicated by bold borders. The table is colour- and symbol-coded, as in previous documents, according to the legend below. Where the assessment has been altered, the explanations for the changes are provided at appendix 1.

Significance of SMP policy	
++	SMP policy is likely to result in a significant positive effect on the environment.
+	SMP policy is likely to have a positive or minor positive effect on the environment (depending on scheme specifics at implementation).
0	SMP policy is likely to have a neutral or negligible effect on the environment.
-	SMP policy is likely to have a negative or minor negative effect on the environment (depending on scheme specifics at implementation).
--	SMP policy is likely to have a significant negative effect on the environment.
N/A	The assessment criterion does not apply to the SMP policy.

**Table 6.5 Combined assessment tables for SEA**

Assessment criterion	SMP management area														
	LOW 1.1-4	KES 05.1-3	BEN 06.1-3	COV 07.1-2	SWD 08.1-3	BLY 09.1-5	BLY 10.1-3	DUN 11.1-4	MIN 12.1-4	MIN 13.1-3	ALB 14.1-4	ORF 15.1-2	HOL 16.1-5	DEB 17.1-4	DEB 18.1-2, FEL 19.1-5, 20.0-1
<b>ISSUE - Maintenance and enhancement of biodiversity on a dynamic coastline</b>															
Will SMP policy provide a sustainable approach to habitat management?	0	0	++	++	+	++	+	+	+	+	-	+	-	0	0
Will SMP policy have an adverse effect on the integrity of any international sites?	N/A	N/A	+	--	N/A	N/A	--	--	--	0	+	0	+	+	N/A
Will SMP policy have an adverse effect on the integrity of any Annex 1 priority habitat?	N/A	N/A	0	0	N/A	N/A	0	0	0	N/A	N/A	N/A	0	N/A	N/A
Has SMP policy provided sustainable management for emerging saline lagoon habitat?	N/A	N/A	+	0	N/A	N/A	N/A	+	N/A	N/A	N/A	N/A	+	N/A	N/A
Will there be no net loss of UK BAP habitat within the SMP timeline up to 2100?	0	-	-	-	-	+	+	+	+	+	0	+	+	+	0
Will SMP policy contribute to further SSSIs falling into unfavourable condition and address the causal factors of existing units that are in unfavourable declining condition (due to coastal management) wherever possible?	0	-	+	+	+	+	+	+	+	+	0	+	-	+	+
<b>ISSUE - Maintenance of environmental conditions to support biodiversity and the quality of life</b>															
<b>ISSUE - Maintenance of balance of coastal processes on a dynamic linear coastline with settlements at estuary mouths</b>															
Will SMP policy maintain an overall level of balance across the Suffolk coast with regard to coastal processes, which accepts dynamic change as a key facet of overall coastal management?	+	-	++	+	++	++	++	+	++	+	-	+	--	0	+
Will SMP policy increase actual or potential coastal erosion or flood risk to communities in the future?	0	0	0	0	0	0	0	0	0	0	0	0	+	-	+
Will SMP policy commit future generations to spend more on defences to maintain the same level of protection?	-	-	++	+	+	0	+	0	0	-	-	+	-	-	-
Does the policy work with or against natural processes?	+	+	++	+	+	-	+	+	++	++	-	+	-	-	-
<b>ISSUE - Maintenance of water supply in the coastal zone</b>															
Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	+	+	N/A	0	0	-	0	0	0	0	+	+	+	-	+
<b>ISSUE - Maintenance of the vales of the coastal landscape and Area of Outstanding Natural Beauty (AONB)</b>															
Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the Suffolk coastal landscape?	+	+	+	+	+	+	+	+	-	+	+	0	+	+	+
Will SMP policy lead to the introduction of features that are unsympathetic to the character of the landscape?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>ISSUE - Protection of historic and archaeological features on a dynamic coastline</b>															
Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	+	+	N/A	0	+	+	N/A	--	--	0	+	N/A	+	0	-
Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	+	+	0	0	0	0	0	0	0	0	0	0	0	0	N/A

Assessment criterion	SMP management area														
	LOW 1.1-4	KES 05.1-3	BEN 06.1-3	COV 07.1-2	SWD 08.1-3	BLY 09.1-5	BLY 10.1-3	DUN 11.1-4	MIN 12.1-4	MIN 13.1-3	ALB 14.1-4	ORF 15.1-2	HOL 16.1-5	DEB 17.1-4	DEB 18.1-2, FEL 19.1-5, 20.0-1
<b>ISSUE - Protection of coastal communities and culture</b>															
<i>Protection of coastal towns and settlements</i>															
Will SMP policy maintain key coastal settlements in a sustainable manner, where the impact of coastal flooding and erosion is minimised and time given for adaptation?	+	+	+	0	+	+	N/A	0	+	0	+	N/A	-	N/A	N/A
Will SMP policy protect the 'coastal character' of communities that have historically been undefended?	N/A	N/A	N/A	+	N/A	+	N/A	+	+	N/A	N/A	N/A	++	N/A	N/A
Will SMP policy maintain the form or function of features located outside established settlements that are essential to the economy and quality of life of key coastal settlements?	N/A	N/A	N/A	N/A	N/A	+	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<i>Protection of key coastal infrastructure</i>															
Will SMP policy maintain road-based transport connectivity between settlements on the Suffolk coast?	+	N/A	N/A	N/A	N/A	N/A	0	N/A	-	0	0	N/A	N/A	N/A	+
Will SMP policy maintain rail-based transport connectivity between the Suffolk coast and the national rail network?	+	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	N/A	N/A	N/A	+
Will SMP policy maintain or enhance levels of access along or to the Suffolk coast?	+	+	0	0	-	+	N/A	N/A	-	0	0	0	0	0	0
Will SMP policy protect Sizewell Nuclear power station in situ?	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	+	N/A	N/A	N/A	N/A	N/A

Based on the updated assessment of the final policies, consideration needs to be given to anticipated changes in the overall effects of the final SMP. The areas that have changed are summarised below.

### **European sites**

Following finalisation of the ER, the change in policy at COV 7.2 has led to a reassessment of the impact on the Annex 1 priority habitat (reedbed) there from major negative to neutral.

### **Historic environment**

Following comments received through consultation, and in ongoing discussion with English Heritage, the impact on historic listed buildings and conservation areas has been changed in several locations (DEB 18.1 to 18.2, FEL 19.1 to 19.5 and 20.0 to 20.1). As there will be an impact on the Landguard Fort scheduled monument, the assessment has been changed from neutral to minor negative.

The assessment of the impact on archaeological sites and paleo-environmental features has also been changed from minor positive to neutral for three assessment units (SWD 8.1 to 8.3, BLY 9.1 to 9.5 and BLY 10.1 to 10.3) and from not applicable to neutral for two assessment units (ORF 15.2, HOL 16.1 and 16.2). These changes are based on more detailed discussion with the historic environment stakeholders, and in-depth consideration, as mentioned above.

## **Section 7 – Environmental monitoring measures for the implementation of this project**

The Suffolk SMP2 provides an integrated suite of management that seeks to maintain coastal habitats and ecological values and integrity while protecting coastal communities and the features that provide a sustainable future. In keeping such a balance, some negative environmental impacts are likely to be unavoidable. However, it is currently uncertain how the system will respond both to management and sea level rise. Monitoring is therefore required to ensure that future management is responsive to both anticipated and unforeseen changes.

The SMP action plan provides for these actions. More detailed assessments will also be carried out at both the coastal strategy and scheme level. These will include HRA and other assessments to determine and mitigate environmental impacts.

The detailed monitoring requirements arising from the SEA Environmental Report are outlined below. These will also be provided by the SMP action plan.

### **Effects on the integrity of international sites**

The SMP has the potential to affect the condition of several international sites through changes in habitat and coastal management (see Appendix J – Appropriate Assessment). The manner in which habitats respond to the preferred policies and sea level rise in the early epochs needs to be monitored and assessed.

The action plan provides a specific programme of monitoring and evaluation to determine the detailed response of the system to management and sea level rise. The approach specified is as follows:

- Action – Continue shoreline monitoring programme. Expand and fine-tune to address data needs raised in SMP for each PDZ, to inform SMP2 policies and SMP3 and to feed into studies.

A location-specific action that has been identified is at East Lane. This is deemed necessary to monitor beach levels with respect to their impact on the Alde-Ore Estuary Ramsar/SPA and Orfordness - Shingle Street SAC.

### **Effects on condition of SSSIs**

The SMP has the potential to affect the condition of SSSIs through changes in habitat and coastal management, with knock-on effects on the high level targets relating to SSSIs in favourable condition. A key tool in managing and monitoring change on the Suffolk coastline is the continued monitoring of SSSI units. This allows an early determination of where favourable condition

may be threatened by SMP policies. It is considered that the existing monitoring programme undertaken by Natural England would be sufficient for this purpose, but any initial findings should be fed into the SMP action plan and subsequent policy at the earliest stage.

- The actions provided for monitoring in the action plan, coupled with the monitoring programmes established by Natural England and the Environment Agency, will ensure that impacts on SSSIs are considered by, and inform, future policies.

In addition, it has been recognised that monitoring of the beach management at Landguard Common is required to assess its impact on the Landguard Common SSSI.

### **Effects on UKBAP habitat**

One of the main effects of SMP policies will be the change in the composition of transitional habitat, due in part to promoting natural change under a scenario of rising relative sea levels. There is a need, therefore, to ensure that monitoring of BAP habitat in the plan area highlights shifts in BAP habitat area and informs the BAP recording process. This is needed to help ensure that management addresses any requirements resulting from impacts of the SMP.

- The actions provided for monitoring in the action plan, coupled with Natural England and the Environment Agency's monitoring programmes, will ensure that impacts on UKBAP habitat are considered and inform the development of future SMP policies.

### **Effects on coastal cultural and archaeological sites**

Where the implementation of SMP policy would lead to the loss of sites/features that are important to the historic environment, two options are available:

1. Relocate features to a more sustainable location or
2. Provide a site investigation to investigate and record the content and value of sites.

In general across the SMP area it is necessary to assess the archaeological potential and impacts of heritage losses. This will involve a plan to record archaeological losses due to coastal change. In addition, two specific actions have been identified:

- At Covehithe it has been recognised that it is necessary to develop plans to record the local cultural and social history.
- At Dunwich erosion is expected to be an issue in the vicinity of Greyfriars priory and the Hospital of the Holy Trinity. Therefore this threat to these heritage assets will be monitored and mitigation measures put in place as required.

A range of other actions are included in the SMP action plan. These include measures to monitor the tidal prism of the Blyth Estuary to develop an on-going understanding of its behaviour and inform future management, to monitor the leachate plume at Gisleham waste site, and to monitor the impact of human trampling at the Denes to inform the management necessary to maintain the integrity of the dune and allow them to respond naturally.

## References

**Environment Agency (2010)** Suffolk Shoreline Management Plan (including appendices). :

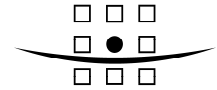
**Defra (2006)** Shoreline management plan guidance. Volume 2: Procedures March 2006.



## **Appendix 1: SEA Criteria Reassessment Tables**

Assessment Unit	SEA Criterion	Explanation of Assessment
COV 7.1 – 7.2	Will SMP policy have an adverse effect on the integrity of any Annex 1 priority habitat	The three broads adjacent to this area (Benacre Broad, Covehithe Broad and Easton Broad) are all examples of saline lagoons. The effect of this policy would be to enable natural processes to continue on this coast, with it being likely that the SAC lagoon at Easton Bavents will migrate up the valley, albeit at the expense of (supporting) freshwater reedbed habitat. Any change to the lagoons would therefore be as a result of natural change, with no adverse effect on integrity. The assessment has been changed from major negative to neutral.
SWD 8.1-3	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	The approach provides an epoch before the realignment policy for the area to the north of Southwold, thereby providing adequate time for its study.  The policy also provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. Although it is acknowledged that study does not mitigate loss, the overall assessment has been changed from minor positive to neutral.
BLY 9.1-5	Will SMP policy maintain structures to defend water abstraction infrastructure and to avoid any exacerbation of levels of saline intrusion into freshwater aquifers?	The Management Area will lead to natural development, and will lead to possible threats of this supply. Although this will need to be examined in more detail the assessment has been changed from neutral to minor negative.
	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	
BLY 10.1-3	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	The policy approach provides for a gradual/natural approach to realignment which would enable the study and investigation of archaeological features. The Management Area therefore may lead to the loss of features, but time is provided for their study and potential mitigation. Losses to the historic environment can never be fully overcome by mitigation and in this instance the assessment has been changed from minor positive to neutral.
ORF 15.1-2	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	SMP policy is for NAI across all areas and epochs except Sudbourne Beach (NAI in epoch one).  Sudbourne marshes do contain prehistoric, Roman and medieval coastal related sites, while Orford Ness contains a major group of 20th century military structures. However, due to the stability in the system, these are not considered to be affected during the lifetime of the plan. The assessment has been changed from not applicable to neutral.
HOL 16.1-5	Will SMP policy provide sustainable protection of archaeological and palaeo-environmental features (where appropriate) and ensure the provision of adequate time for the survey of archaeological sites where loss is expected?	SMP policy advocates NAI and MR, which has the potential to lead to the loss of heritage assets (including Roman salterns, Roman settlement and Bronze Age barrow cemetery) at Gedgrave, Boyton and Hollesley Marshes. However, on balance and due to the timing of policy and location of assets, the assessment has been changed from not applicable to neutral.
DEB 18.1-2, FEL 19.1-5, 20.0-1	Will SMP policy maintain the fabric and setting of key historic listed buildings and conservation areas?	Landguard Common lies entirely within the designated area of Landguard Fort scheduled monument, which will be subject to MR. The assessment has been changed from neutral to minor negative.





**ROYAL HASKONING**

## **Appendix F Strategic Environmental Assessment**

### **C) Assessment of plans, policies and programmes**



# **Suffolk Shoreline Management Plan (SMP2)**

Assessment of plans, policies and programmes

December 2010

Final report



## Summary

This report identifies whether and how any of the environmental effects identified as resulting from implementing the Suffolk Shoreline Management Plan 2 (SMP2) policies may act in-combination with the effects of other plans, policies or programmes.

This report ensures compliance with the European Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (the Strategic Environmental Assessment (SEA) Directive) by documenting that the effects of the SMP2 have been considered in-combination with those of other plans and programmes. Although in-combination effects were considered while developing the SMP2 and the accompanying SEA, this assessment was not formally documented in the Environmental Report (ER).

Plans, policies and programmes relevant to the Suffolk SMP2 area that have the potential to interact with the effects of the SMP2 policies are identified (the list of documents has been updated since the SEA scoping report) and the assessment of in-combination effects documented. All documents are assessed at the plan level and without any consideration of mitigation or prevention measures associated with implementing them.

In conclusion, no significant in-combination effects are anticipated. A number of in-combination effects, both positive and negative, are identified. However, none are considered to be of sufficient scale that specific policy amendments or other mitigation beyond that already identified in the ER and the main SMP document is required.

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# **1 Introduction**

## **1.1 Purpose of this report**

The purpose of this report is to identify whether and how any of the environmental effects identified as resulting from implementing the Shoreline Management Plan 2 (SMP2) policies may act in-combination with the effects of other policies, plans and programmes.

This report ensures compliance with the European Directive 2001/42/EC “on the assessment of the effects of certain plans and programmes on the environment” (the Strategic Environmental Assessment (SEA) Directive), detailing the in-combination assessment. Although the in-combination effects were taken into consideration while developing the SEA documents and the SMP2, this assessment was not included. The aim of this report is to specifically document the assessment.

This report is intended to be concise and so where necessary refers to, rather than repeating, elements of the other SEA reports (for example, the scoping report and Environmental Report (ER) (Environment Agency, 2009a).

## **1.2 Structure of this report**

This report is broken down into six chapters:

- Chapter 1: Introduction – introduces the report, its purpose and structure.
- Chapter 2: Assessment process – documents the methods used for assessing the in-combination effects.
- Chapter 3: Identification of policies, plans and programmes – identifies plans, programmes and projects that may interact with the SMP.
- Chapter 4: Consideration of potential in-combination effects – considers the potential interactions and synergistic effects between the plans, policies and programmes identified and the effects of the SMP2 policies.
- Chapter 5: Conclusions and recommendations – outlines the conclusions of the report.
- Chapter 6: References – lists the references used to produce this report.

## **2 Assessment process**

### **2.1 Process**

Firstly, policies, plans and programmes that are relevant to the Suffolk SMP2 area, and have the potential to interact with the effects of the SMP2 policies, were identified. These were previously documented in **section 2.6** and appendix A of the scoping report<sup>1</sup> undertaken as part of the SEA, and have been updated/added to where appropriate. In many cases these documents and their objectives have been central to the development of policies in the SMP2, and to establishing the assessment framework within the SEA.

The key effects of these plans, policies and programmes were then assessed in relation to the effects identified as potentially arising from implementing the SMP2 policies. For the purposes of assessing the in-combination effects other policies, plans and programmes have been considered at face value, without mitigation, prevention or avoidance measures. The focus of this report is at the plan level and not at the specific SMP2 policy development zone (PDZ) level, which was the assessment level adopted in the SEA.

### **2.2 Effects of the SMP2**

Through the SEA process, it has been identified that the SMP2 as a plan will have a range of positive and negative effects on receptors and interest features considered by the assessment criteria. Positive effects of the SMP2 are anticipated to relate to the elements below:

- habitat management
- 'coastal character' of communities
- natural processes and
- balance across the Suffolk coast in regard to coastal processes.

Significant negative effects relate to effects on the integrity of Natura 2000 and Ramsar sites, afforded protection under the Habitats Directive<sup>2</sup>, Birds Directive<sup>3</sup> and Conservation of Habitats and Species Regulations 2010 (known as the Habitats Regulations). These impacts are also identified and considered in more detail in the SEA ER, and in the Habitats Regulations Assessment completed for the SMP2 (Environment Agency, 2009a and Environment Agency, 2009b).

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<sup>1</sup> This scoping report was provided for consultation with statutory consultees and the Client Steering Group

<sup>2</sup> Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

<sup>3</sup> Council Directive 2009/147/EC on the conservation of wild birds

### **3 Identification of plans, policies and programmes**

#### **3.1 Introduction**

The SEA scoping report identified plans, policies and programmes that have the potential to interact with the effects of the SMP2. These relate to the development of land in the coastal zone, protection of people and properties, the protection of habitats and species, management of water bodies, and development of infrastructure and economy. The following sections outline these policies, plans and programmes and discuss their main objectives and key effects. Where appropriate additional documents have been identified and considered.

#### **3.2 International/European**

The following sections outline the key international and European legislation or agreements that have the potential to interact with the SMP2 and its selected policies.

##### **3.2.1 The Water Framework Directive**

The Water Framework Directive<sup>4</sup> (WFD) is designed to improve and integrate the way water bodies are managed throughout Europe. It came into force on 22 December 2000 and was transposed into UK law in 2003. Member states must aim to reach good chemical and ecological status/potential in inland and coastal waters by 2015. The River Basin Management Plans (RBMP) produced by the Environment Agency set out the objectives for meeting the WFD (see **section 3.4.2** for information on the relevant RBMP).

The main environmental objectives of the Directive are detailed below.

- No deterioration of status for surface and groundwaters and the protection, enhancement and restoration of all water bodies.
- Achievement of good status by 2015, that is, good ecological status (or potential) and good chemical status for surface waters and good chemical and good quantitative status for groundwaters.
- Progressive reduction of pollution of priority substances and phase out of priority hazardous substances in surface waters and prevention and limitation of input of pollutants in groundwaters.
- Reversal of any significant, upward trend of pollutants in groundwaters.
- Achievement of standards and objectives set for protected areas in Community legislation.

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<sup>4</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy

### 3.2.2 The Habitats Directive

The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring member states to take measures to maintain or restore natural habitats and wild species at a favourable conservation status, introducing robust protection for those habitats and species of European importance. In applying these measures, member states are required to take account of economic, social and cultural requirements, as well as regional and local characteristics.

The provisions of the Directive require member states to introduce a range of measures, including:

- Maintain or restore European protected habitats and species listed in the annexes at a favourable conservation status as defined in Articles 1 and 2.
- Contribute to a coherent European ecological network of protected sites.
- Ensure conservation measures are in place to manage Special Areas of Conservation (SACs) appropriately and ensure appropriate assessment of plans and projects likely to have a significant effect on the integrity of a SAC.
- Member states shall also try to encourage the management of features of the landscape that support the Natura 2000 network (Articles 3 and 10).
- Undertake surveillance of habitats and species (Article 11).
- Ensure strict protection of species listed in Annex IV (Article 12 for animals and Article 13 for plants).

### 3.2.3 The Birds Directive

This directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for achieving them are at the discretion of each member state (in the UK delivery is through several different pieces of legislation, including the Habitats Regulations and The Wildlife and Countryside Act 2000).

Main provisions of the Directive include:

- The maintenance of populations of all wild bird species across their natural range (Article 2) with the encouragement of various activities to that end (Article 3).
- The identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I, as well as for all regularly-occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4).
- The establishment of a general scheme of protection for all wild birds (Article 5).

- Restrictions on the sale and keeping of wild birds (Article 6).
- Specification of the conditions under which hunting and falconry can be undertaken (Article 7).
- Prohibition of large-scale non-selective means of bird killing (Article 8).
- Encouragement of certain forms of relevant research (Article 10 and Annex V).
- Requirements to ensure that introduction of non-native birds do not threaten other biodiversity (Article 11).

### 3.3 National

The following sections provide a brief description of the relevant national level plans and policies that could have potential interactions with the SMP. They also outline the key findings of these plans in relation to the coast within the SMP2 boundary.

#### 3.3.1 Coastal Habitat Management Plans

Coastal Habitat Management Plans (CHaMPs) are mechanisms for delivering flood and coastal defence schemes that comply with the requirements of the Habitats Directive. They quantify habitat change, loss and gain and recommend measures to prevent future losses. CHaMPs also include strategic habitat monitoring programmes to map future changes.

The Suffolk CHaMP (Royal Haskoning, 2002) indicated that, although the Suffolk coast and its estuaries represent one of the most undeveloped and dynamic sections of coastline in eastern and southern England, their future existence cannot be assured. Apart from intertidal mudflat, there are likely to be losses in extent of all other coastal habitats. This loss is due to a combination of factors listed below.

- Natural erosion of the open coast as a result of sea level rise and loss of shingle and sand dune habitat.
- Rollback of shingle barriers at Benacre, Easton and Walberswick and consequent loss of reedbed and grazing marsh habitat.
- Tidal inundation of grassland and saline lagoon habitats on Orfordness (Lantern and Kings Marshes).
- The potential for loss of saline lagoons at Benacre, Covehithe and Easton due to 'natural' coastal erosion.
- Increase in area of intertidal mudflat as a result of failure of shingle barrier and tidal inundation at Walberswick and overtopping of defences at Kings and Lantern Marshes, Orfordness.
- Loss of saltmarsh due to continued coastal squeeze in the Blyth, Alde-Ore, Deben and Stour and Orwell<sup>5</sup> estuaries. It is predicted that additional growth of saltmarsh in areas such as Walberswick and

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<sup>5</sup> The Stour and Orwell Estuaries are not within the SMP2 study area.

Orfordness will not compensate for predicted losses due to coastal squeeze.

A combination of allowing 'natural' processes to continue, only limited change to existing flood and coastal defence policies, and habitat creation is recommended as a way to manage the coastal area and associated habitats. Combining the management of areas where change is predicted with the creation of new areas to offset the loss of some specific interest features would maintain and potentially increase the overall level of ecological interest/resource.

### 3.3.2 Planning Policy Statements

Planning Policy Statements (PPS) set out national policies on different aspects of spatial planning in England. They are gradually replacing Planning Policy Guidance (PPG) documents.

The most relevant PPS in the context of a SMP is PPS 25 and its recent supplement. This sets out government policy on development in relation to flood risk. Adherence to PPS 25 guidance minimises the likelihood of development occurring that will prejudice SMP2 policies. However, it does not entirely preclude the possibility that detrimental effects may result.

Coastal development, previously addressed by PPG 20 Coastal Planning<sup>4</sup>, is now addressed by PPS 25 Supplement: Development and Coastal Change. This covers the character of the coast, designated areas, heritage coasts and the international dimension. It also outlines details for developments that may specifically require a coastal location, including tourism, recreation, mineral extraction, energy generation and waste water and sewage treatment plants.

Other relevant statements include PPS 5 and PPS 9. PPS 5 (Planning for the Historic Environment) lays out government policies for identifying and protecting historic buildings, conservation areas and other elements of the historic environment. PPS 9 Biodiversity and Geological Conservation<sup>6</sup> sets out planning policies on protecting biodiversity and geological conservation through the planning system.

### 3.3.3 UK Sustainable Development Strategy

The 2005 UK Sustainable Development Strategy 'Securing the Future' updates the previous strategy in the light of changes to UK government structures, including devolution to Scotland, Wales and Northern Ireland, a greater emphasis on delivery at regional level and the new relationship between government and local authorities. It also takes account of policies announced since 1999, in particular the 2003 Energy White Paper that sets a

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<sup>6</sup> PPG20 has been cancelled with the exception of paragraphs 2.9, 2.10 and 3.9. A new Planning Policy Statement: Planning for a Natural and Healthy Environment was recently consulted on (to June 2010). The consultation document combines PPS9 with elements of PPS7: Sustainable Development in Rural Areas, PPS17: Planning for Open Space, Sport and Recreation, and PPG20: Coastal Planning

long-term goal of achieving a low carbon economy. It also takes account of the renewed international focus on sustainable development following the World Summit on Sustainable Development in Johannesburg in 2002 and the Millennium Development Goals.

The strategy has five main principles: living within environmental limits, ensuring a strong, healthy and just society, achieving a sustainable economy, promoting good governance and using sound science responsibly.

### **3.4 Regional plans**

Relevant regional plans are detailed in the sections below. These include Catchment Flood Management Plans, River Basin Management Plans, the Regional Spatial Strategy/ East of England Plan, the Suffolk Biodiversity Action Plan (BAP) and the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Management Plan.

#### **3.4.1 Catchment Flood Management Plans**

Catchment Flood Management Plans (CFMPs) give an overview of the flood risk across each river catchment and recommend ways of managing those risks now and over the next 50 to 100 years. CFMPs consider all types of inland flooding - from rivers, groundwater, surface water, sewers and tidal flooding - but not flooding directly from the sea. CFMPs take into account the likely effects of climate change, the effects of land management and how areas could be developed to meet present needs without compromising the needs of future generations. They are intended to be complementary to the SMPs.

The Suffolk SMP2 boundary falls within policy unit 1 (Suffolk Coast and Heaths) of the East Suffolk CFMP (Environment Agency, 2009c). The flood risk management policy for this area is policy 2 - areas of low to moderate flood risk where the Environment Agency can generally reduce existing flood risk management actions. The risk of river flooding is low in this area. The CFMP specifies that flood risk actions will be reduced if they do not cause an adverse effect on the condition of the internationally designated sites or where flood risk is more concentrated (for example, towns and villages).

#### **3.4.2 River Basin Management Plans**

River Basin Management Plans (RBMPs) are plans for protecting and improving the water environment. They consider the main issues for the water environment and describe response actions that are required. RBMPs have also undergone SEA. In the case of the Anglian RBMP the following potential issues were identified:

- impacts on businesses and industry from flood risk and noise and disruption caused by construction activities

- some actions will generate waste, some may make existing resources unusable and some may use a lot of energy
- potential changes to landscape from new assets
- potential to spread alien invasive species and to break up wildlife habitats by new assets and construction disturbance
- coastal retreat and naturalisation of channels may result in loss of features
- increased energy demand from new development and movement of food due to loss of agricultural land and marine fishing controls

The Anglian RBMP SEA included a cumulative effects assessment with other plans and programmes. It concluded that there were potentially significant positive in-combination effects with the Regional Spatial Strategies in relation to population and human health with regard to regeneration, biodiversity and material assets (development of waste reduction measures and increase in green infrastructure) (Environment Agency, 2009d). Negative effects were also noted, in particular the loss of some water-based recreational activities resulting from pressure on water through increased housing growth and the potential flood risk impact associated with this increased growth.

### 3.4.3 East of England Plan and Regional Spatial Strategy (RSS)

The East of England Plan outlines substantial growth and infrastructure improvements across the counties of Norfolk, Suffolk, Cambridgeshire, Essex, Hertfordshire and Bedfordshire (Government Office for the East of England, 2008). Together with relevant sections of the Milton Keynes South Midlands Sub-Regional Strategy it constituted the Regional Spatial Strategy (RSS).

In May 2010, the new Coalition Government announced and implemented a number of changes that affect the way local authorities plan for future growth, particularly the revocation of Regional Spatial Strategies. The East of England Plan was revoked on 6 July 2010, although this position is currently subject to legal challenge. However, as an alternative mechanism for strategic planning has not yet been decided, this plan and its policies are considered under this assessment. The relevant RSS policies are listed below.

- SS9: The Coast
- E4: Clusters
- ENV1: Green Infrastructure
- ENV2: Landscape Conservation
- ENV3: Biodiversity and Earth Heritage
- ENV4: Agriculture, Land and Soils
- ENV6: The Historic Environment
- NEG2: Renewable Energy Targets
- WAT4: Flood Risk Management



- GYL1: Great Yarmouth and Lowestoft Key Centres for Development and Change

#### 3.4.4 Suffolk Biodiversity Action Plan

The UK Biodiversity Action Plan (BAP) describes the biological resources of the UK and provides detailed plans for their conservation at national and devolved levels. Action plans for the most threatened species and habitats have been set out to aid recovery.

The Suffolk BAP sets out the action plans for key species and habitats identified in Suffolk. This includes action plans for the following habitats: coastal and flood plain grazing marsh, coastal sand dunes, coastal vegetated shingle, maritime cliffs and slopes, mudflats, saline lagoons, reedbeds, saltmarsh and seagrass beds. There are also species plans for a range of coastal animals.

#### 3.4.5 Suffolk Geodiversity Action Plan

A draft local Geodiversity Action Plan (LGAP) was produced in 2006 by Natural England and the GeoSuffolk Group (an unincorporated, non profit-making association of professional and amateur geologists). The Suffolk LGAP has the following five aims:

- To carry out a geodiversity audit for Suffolk
- To carry out geodiversity conservation and management
- To promote geodiversity in policy and practice
- Promote geodiversity awareness
- Sustain the Local Geodiversity Action Plan process

Each aim has specific actions and targets to ensure it is met (GeoSuffolk, 2006).

#### 3.4.6 Suffolk Coast and Heaths AONB Management Plan

The Suffolk Coast and Heaths AONB covers 150 square miles and includes wetlands, ancient heaths, windswept shingle beaches and historic towns and villages. The 2008 to 2013 Management Plan, produced under the requirements of the Countryside and Rights of Way Act 2000, comprises two key documents, a Strategy and a three year rolling Action Plan (Suffolk Coast and Heaths Partnership, 2008). The Management Plan has the aims listed below.

- Develop mitigation and adaptation techniques to climate change that will conserve the special qualities of the AONB.
- Integrate planning and management of the coast and estuaries to meet AONB objectives so that all interests are recognised and the special qualities of the AONB are conserved.

- Conserve landscape character and enhance distinctive nature of the AONB.
- Conserve biodiversity and lessen fragmentation of habitats.
- Conserve the historic resources of the area including landscapes, archaeology and the built environment.
- Manage farming and forestry in a sustainable way that enhances landscape and historic character, biodiversity and geodiversity.
- Retain the tranquillity of the area.
- Conserve the geodiversity of the area.
- Have a built environment that reflects local character and is of a scale and form appropriate to the AONB.
- Have the tourism industry and the Suffolk tourism brand based on sustainable practices.
- Have access and recreation provision that respects biodiversity, landscape, geodiversity and historic assets.
- Provide interpretation that improves understanding, guides behaviour and helps people enjoy the AONB.
- Support community involvement in the active conservation and enhancement of the AONB.
- Run an effective AONB Partnership.

### 3.5 Local plans and projects

Most local planning authorities are in the process of updating their spatial planning documents, producing and adopting Local Development Framework (LDF) core strategies (and associated documents).

Core strategies provide an over-arching policy framework for the LDF. They establish the vision, objectives and policies for how a district sees itself progressing within the current planning horizon. They replace previous Local Plans. This section considers the relevant LDF documents, together with flood risk management strategies and one capital scheme identified within the plan area (or its zone of influence).

#### 3.5.1 Waveney District Council

Waveney District Council's Core Strategy Development Plan Document was adopted in January 2009 (Waveney District Council, 2009). The following adopted policies have the potential for in-combination effects with the SMP2:

- CS01: Spatial Strategy.
- CS03: Flooding and Coastal Erosion.
- CS16: Natural Environment.
- CS17: Built and Historic Environment.

### 3.5.2 Suffolk Coastal District Council

Suffolk Coastal District Council's Core Strategy was adopted as interim planning policy by the Council on 18 March 2010. Following a public consultation process, the Core Strategy will then be formally adopted. The following adopted policies have the potential for in-combination effects with the SMP2:

- SP21: Felixstowe.
- SP29: The Countryside.
- SP30: The Coastal Zone.
- DM3: Housing in the Countryside.
- OBJ7: Felixstowe and the Market Towns.
- SP7: Economic Development in Rural Areas.
- OBJ10: The Coast.
- OBJ11: Protecting and Enhancing the Physical Environment.
- SP14: Biodiversity and Geodiversity.
- DM28: Flood Risk.

### 3.5.3 Estuary strategies

The Environment Agency has produced a draft flood risk management strategy for the Blyth Estuary, which is currently awaiting approval of the Statement of Case before it can formally be adopted. The strategy sets out plans to manage flood risk to people, properties and the environment over the next 100 years. Defences at the harbour downstream of the Bailey Bridge will be maintained for the remainder of their life, estimated to be about 20 years. The flood bank fronting Reydon Marsh is currently in a poor condition and will be maintained for the next five years. Maintenance will be withdrawn from all other flood banks and defences in estuary. Opportunities for habitat creation will also be explored in future versions of the strategy.

The Alde-Ore nor Deben Estuary strategies are currently being undertaken but have not yet been finalised.

### 3.5.4 Greater Gabbard offshore wind farm

Greater Gabbard is the world's largest offshore wind farm under construction. It involves the installation of 140 3.6MW wind turbines located around the Inner Gabbard and Galloper sand banks. Turbine installation is happening now and the wind farm is scheduled to be completed in 2012.

The grid connection is located at Sizewell. The connection point to the electricity transmission system is at a new sub-station sited on private land. The intertidal works, connecting the offshore section of the cable to the onshore, have not yet been completed but are expected to be by 2012.

### 3.5.5 Environment Agency Flood Risk Management Projects

Within the Suffolk area are a number of Environment Agency-led projects seeking to maintain or reduce current levels of flood risk.

This includes two projects within the Minsmere RSPB Reserve near Eastbridge. The first involves works to the embankment along the Minsmere New Cut which has dropped in places, resulting in reduced flood protection and the exposure of asbestos piles. This project has undergone a Habitats Regulations Assessment and a Site of Special Scientific Interest (SSSI) assessment and a conclusion of no impact to international or national sites has been made. This has been approved by Natural England.

The other project in the Reserve involves partial managed realignment by raising and improving the Coney Hill Cross Bank. The freshwater habitat in the North Marsh will become more saline as the frequency and severity of saline overtopping and the risk of inundation from the sea increases.

The Environment Agency is also planning to realign a section of the Dunwich River near the village of Dunwich to alleviate flooding to the area.

All of these projects have been designed to be compatible with the Suffolk SMP2 and its chosen policies, and as such, no in-combination impacts should arise. These projects are therefore not discussed further in this report.

## 3.6 Summary

**Table 3.1** below outlines the potential interaction between the plans and programmes identified above and the SMP2 in relation to the receptors identified in the SEA. Based on the information above, interactions, highlighted green and marked with a tick (✓), are discussed further in the next section.

**Table 3.1 Potential for the identified plans, policies and programmes to interact with receptors identified in the SMP2**

Plan, policy or programme	Receptor							
	Habitats	Species	Water	Soil	Landscape	Material assets	Historic environment	Population and communities
Water Framework Directive	✓	✓	✓					
Habitats Directive	✓							
Birds Directive	✓	✓						
CHaMP	✓							
CFMP	✓	✓	✓	✓	✓	✓		✓
RBMP	✓	✓	✓			✓		✓
PPS	✓	✓				✓	✓	✓
UK Sustainable Development Strategy						✓		✓
The East of England Plan	✓	✓	✓	✓	✓	✓	✓	✓
Suffolk BAP	✓	✓						
Suffolk Coast and Heaths AONB Management Plan	✓							
Waveney District Council Core Strategy	✓	✓	✓	✓	✓	✓	✓	✓
Suffolk Coastal District Core Strategy	✓	✓	✓	✓	✓	✓	✓	✓
Greater Gabbard offshore wind farm					✓			
Estuary strategies	✓	✓	✓			✓		✓

## 4 Consideration of potential in-combination effects

### 4.1 Introduction

The following section assesses the potential in-combination effects of the SMP2 with the plans, policies and programmes identified in **section 3** above. The potential effects have been considered according to the receptors and criteria identified in the SEA.

### 4.2 Habitats

The SMP2 Habitats Regulations Assessment (HRA) identified that selected management policies will result in an effect on some of the international sites within the Suffolk SMP2 area (Environment Agency, 2010). The main issue was the losses of freshwater habitats resulting from the SMP2's managed realignment (MR) and hold the line (HTL) policies. The HRA also concluded that there would be no in-combination effects from the SMP2 and the spatial plans discussed in **section 3.5** above. These spatial plans and the PPS all seek to protect and enhance the environment, including designated sites and therefore will not have any negative effects on habitats present.

The Suffolk CHaMP assessed the current extent and condition of habitats and provided a monitoring regime for a range of estuarine and coastal habitats. The results of these schemes will be fed back into the CHaMP and SMP processes.

The HRA for the East of England Plan concluded that the policies would not give rise to any adverse effects on the integrity of sites of European or international importance for nature conservation. As a higher level plan, any further issues that did come to light under more detailed assessment would be associated with the spatial plans discussed above.

The Suffolk Coast and Heaths AONB Management Plan sets out specific actions to maintain and improve coastal habitats, BAP habitats and designated sites. It sets out the need for strategies for the creation of consultation projects to determine how to manage areas and projects to improve Site of Special Scientific Interests (SSSI) in line with their targets. The proposed actions will have a positive effect on the AONB area and the associated habitats and therefore no negative in-combination effects with the SMP2 are anticipated. However, the benefits brought by the management plan will not be sufficient to offset the scale of impact resulting from the SMP2.

The estuary strategies are at various stages of development along the Suffolk coast. The strategies have the potential to lead to a similar range of effects to those of the SMP2, so in theory there is potential for in-combination effects. However, the strategies are intended to have regard to SMP2 policies and provide an integrated approach to management. Due to the hierarchical relationship between the SMP2 and strategies we consider that

the SMP and the strategies will have only common effects and therefore there will be no in-combination effects.

The SMP2 is seeking to achieve a more naturalised coastal system along the Suffolk coast, where natural processes are allowed to occur. This process will also allow for a more reduced programme of habitat management to occur as habitat transitions commence and more sustainable areas develop. The reduction of flood risk management activities proposed in the CFMP, and the measures outlined in the RBMP, will improve the condition of the rivers flowing to the coast and benefit the creation of a naturalised system. They also contribute towards the resilience of natural habitats.

One of the main effects of SMP policies will be the shift in transitional habitat composition, due in part to the promotion of natural change in the face of rising relative sea levels. Although some BAP habitats, in particular freshwater habitat could be lost through coastal squeeze as result of HTL (or MR or NAI) policies, others will be created. Coastal BAP habitats are ephemeral and it is considered that the wider management of the Suffolk coast will ensure that in the long term the extent of these habitats would naturally fluctuate. The Suffolk BAP seeks to maintain certain coastal habitats (see **section 3.4.4**) and the SMP2 will assist this, creating extra BAP habitat at certain locations along the coast.

The considerations above lead to a conclusion that there will be no adverse in-combination effects on habitat arising from the Suffolk SMP2 and the policies, plans and programmes outlined in **section 3**.

### **4.3 Species**

No direct impacts on species are expected to result from implementing SMP2 policies. However, indirect effects on species will result from the habitat impacts detailed in the section above. The loss of freshwater and intertidal habitats will affect plant species and in turn may affect invertebrate and bird species that rely on these habitats.

The provision of extra BAP habitat along the coast, through the managed realignment policies in the SMP, will provide extra roosting and foraging areas for bird species. This will result in a positive effect on the bird species that are interest features of the sites designated under the Birds Directive.

The conclusions in **section 4.2**, about the other plans and policies discussed within **section 3**, are therefore applicable to the effects on species arising from the SMP so no in-combination effects are anticipated.

### **4.4 Water**

The Anglian RBMP, as a requirement of the WFD, details specific objectives for each water body with mitigation measures designed to maintain and obtain them. This sets out the targets and aims of the RBMP, which should be achieved by 2015 or 2027. The water bodies affected by the SMP2 have all been identified as not meeting good status by 2015 as mitigation

measures are either not technically feasible or disproportionately expensive (Environment Agency, 2009c). The chosen policies of the SMP2 are unlikely to contribute to the water bodies meeting their required status by 2027.

The SMP2 has been subject to its own WFD assessment. It assessed two transitional and coastal (TRaC) water bodies - Suffolk and Deben, and three freshwater bodies - Lothingland Hundred, Leiston Beck and Hundred River as being potentially failing WFD objectives 2 and 3<sup>7</sup> respectively. This failure is due to the adoption of the preferred SMP2 policies which may constrain the development of sand dunes in Suffolk Coastal. Similarly, it has been identified that preferred SMP policies have the potential to result in deterioration in ecological potential for the Deben transitional water body.

The freshwater bodies have the potential to be affected by MR policies due to direct loss through coastal erosion and increased risk of saline inundation by overtopping. However, the WFD assessment identifies that these water bodies already experience periodic saline inundations and recommends that their status be reviewed.

For most of the SMP2 area, it is unlikely that the proposed policies will negatively affect the current or target ecological status or potential of water bodies. However, where meeting environmental objectives is not supported, the SMP2 will not be in line with the objectives of the RBMP and WFD.

In one management area SMP2 policy will result in the possible loss of a single abstraction point on the north shore of the River Deben due to a lowering of the standard of protection. All other abstraction points will be maintained and protected by the SMP2.

The East Suffolk CFMP is proposing to reduce flood risk management in the coastal area. This will result in a naturalisation of the river systems and may increase flows in some watercourses during flood events. However, the risk of river flooding is low in this area and tidal flooding is the cause of most flood events. Any effects associated with reducing flood risk management in the Suffolk rivers are unlikely to act in-combination with SMP2 policies.

As previously stated, the estuary strategies will have an integrated management approach with the SMP2 so no in-combination effects on water are anticipated.

The (revoked) East of England Plan and associated core strategies seek to maintain water resources and quality. Also, the East of England Plan states that local authorities should ensure that all relevant plans and policies take into account the environmental consequences of RBMPs. No significant adverse in-combination effects are anticipated with the SMP.

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<sup>7</sup> WFD2: No changes that will cause failure to meet surface water good ecological status or potential or result in a deterioration of surface water ecological status or potential.  
WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies.



## 4.5 Soil

The SMP2 will reduce the risk of flooding and saline intrusion to agricultural land. No adverse effects on soils have been identified through the detailed assessment of the SMP2 policies in the SEA. By reducing flood risk management in the East Suffolk CFMP area, some agricultural land will be at risk in a one per cent annual exceedance probability river flood. However, management measures will only be reduced where appropriate and sustainable farming practices are encouraged.

The core strategies have a number of policies to ensure that agriculture in Suffolk is maintained and encouraged. This will involve protecting agricultural land where appropriate. The East of England Plan also had a policy specifically for agriculture and soils (ENV4). It stated that planning authorities and other agencies should maintain and enhance the resilience and quality of soils and encourage the sustainable use of soil resources. Therefore no adverse in-combination effects are expected.

## 4.6 Landscape

SMP policies seek to maintain the social aspects of the Suffolk landscape while striving to provide a mosaic of dynamic coastal habitats and geomorphology. With two exceptions, every management area has a minor positive effect on maintaining the character of the Suffolk coastal landscape. Of the remaining management areas, only one is considered to have a minor adverse effect on the coastal landscape due to the expected loss of a small chapel.

Overall, the SMP enables the maintenance of static features while allowing the balance of dynamic features that are essential to the character of the coastal landscape. The SMP does not promote the creation of defence structures in locations which would be detrimental to the character of the coastal landscape. As a result, SMP policies have been assessed as having a universally neutral effect on landscape.

All the plans (including the East of England Plan and the local authority core strategies) mentioned in the table in **section 3** and in particular the AONB Management Plan, in one form or another, seek to maintain the Suffolk landscape and ensure that it is functional and attractive.

The Greater Gabbard offshore wind farm will result in a small change to the visual impact of the sea views and the overall landscape of the area. However, the turbines are located around 23 kilometres off the coast and are therefore unlikely to have an impact on the landscape of the Suffolk coast. Overall the effect of implementing the SMP2, in-combination with these plans, remains positive.

## 4.7 Material assets

The consideration of critical infrastructure has been a central driver of SMP2 policies and, although a small section of road between Eastbridge and surrounding areas is likely to be lost over time, it is expected that an alternative route will be easily established so the impact of the SMP is minor. The UK Sustainable Development Strategy has objectives relating to the protection of coastal areas and ensuring that their infrastructure is maintained. As the SMP2 will not have any adverse effects, and land use plans have specific policies to protect these coastal features, the SMP2 in-combination with these plans will continue to have beneficial effects on coastal communities, protecting material assets and activities into the future.

By safeguarding the coastline, the SMP2 aims to help maintain its tourism features and local commerce attributes. The spatial plans and RSS identified in **sections 3.4** and **3.5** also seek to maintain and improve tourism on the coast. The UK Sustainable Development Strategy also seeks to increase the productivity of tourism activities. The SMP2 policies are supportive of this approach so, in-combination with the other plans, policies and programmes identified in **table 3.1**, the SMP2 is likely to have a beneficial effect on tourism and, in turn, local commerce.

## 4.8 Historic environment

As historic environment designations tend to be concentrated around existing coastal settlements, SMP policies will typically protect the majority of designated archaeological and historic features. Only in two management areas are SMP policies considered to have an adverse effect on historic buildings or settings. It is anticipated that two scheduled monuments will be lost and in the future the historic settlement of Dunwich will be affected through the implementation of a no active intervention policy. However, these losses will occur over time and monitoring will be undertaken to help mitigate the impact.

PPS 5 sets out the Government's objectives for the historic environment and the rationale for its conservation. It recognises the unique place the historic environment holds in England's cultural heritage and the ways it supports and contributes to the economy, society and daily life. The PPS also identifies the historic environment as a non-renewable resource. The PPS helps to inform the core strategies (and previous Regional Spatial Strategy), all of which have policies that ensure the protection of historic environment features. These should ensure that no adverse in-combination effects can occur and that these historic features are maintained and protected. As the SMP2 also seeks to protect heritage assets at other locations, there will be beneficial interactions with (support for) the local planning authorities' policies.

## 4.9 Population and communities

In all management areas except one, SMP2 policies are not considered likely to have a negative effect on coastal communities, or their 'coastal character'.

The SMP2 is reducing the risk of flooding to coastal settlements, which is in line with the relevant core strategies and PPS25. Although development is proposed along the coastal area, specific policies (DM28 and CS03, respectively) in Suffolk Coastal District and Waveney District Core Strategies ensure that flood risk is taken into account and developments avoid risk areas.

The East Suffolk CFMP has identified that the area within the SMP2 boundary is currently over-maintained and proposes a reduction in flood risk management where it is appropriate. Tide-locking resulting from future increases in sea level was identified as having the potential to cause increased flood water levels on the River Gipping, the Lothingland Hundred River, Cove Run and the River Minsmere. The policies proposed in the SMP2 will maintain river outfalls. Although flood risk from rivers has been identified as low, the potential for tide-locking remains and will need to be addressed at the scheme level. However, both the CFMP and SMP provide a benefit to local populations through continued reduction of flood risk.

By implementing measures to improve the status of water bodies, the RBMP is ensuring that the likelihood of pollution incidents is reduced. This will have additional beneficial effects on human health during times of high flow, but does not interact directly with the SMP2 policies.

The other plans identified in **table 3.1** in **section 3** do not have any effects associated with increasing the risk to local populations so there will be no adverse in-combination effects related to population and human health. By proposing policies that reduce flood risk to local communities, the SMP2 has a supportive or beneficial interaction with local policies on coastal development, the East of England Plan, the UK Sustainable Development Strategy and the CFMP.

## 5 Conclusions

This report has described key policies, plans and programmes and the potential for in-combination effects and complementary and conflicting objectives, between these and the SMP2. All documents were assessed at the plan level and without any consideration of mitigation or prevention measures associated with implementing the plans.

The majority of the plans, policies and programmes assessed seek to protect the environment and establish key goals and measures for achieving this. All the plans assessed in this report seek to protect or enhance many of the features that may be adversely affected by the SMP2 in one way or another. Although significant in-combination effects are not anticipated, the SMP2 does not necessarily entirely support the objectives of the other plans, policies and programmes (for example, there may be some conflict between the SMP2 and the RBMP).

Although there will be some habitat loss through the proposed managed realignments, these effects will not be enhanced in-combination with other plans. The same conclusion can also be drawn for effects on the historic environment.

Some mutually supportive in-combination effects will arise from the SMP2 and these plans. The spatial plans will protect and enhance rural and coastal communities. The SMP2 will also do this through protecting infrastructure and communities. Also, BAP habitat will be created as part of the SMP process. All the plans discussed in this report seek to protect and enhance the landscape of the Suffolk coast.

**In conclusion, a number of in-combination effects have been identified between the Suffolk SMP2 and the plans, policies and programmes assessed through the SEA process. A number of these are beneficial, where the SMP2 supports the activities and objectives of the other identified plans. Where adverse interactions are identified these are not considered to be significant, or of sufficient scale to require mitigation beyond that already contained in the SMP2 (and as detailed in the SMP action plan).**

## 6 References

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**Environment Agency (2009b)** Suffolk Shoreline Management Plan: Habitats Regulations Assessment.

**Environment Agency (2009c)** The East Suffolk Catchment Flood Management Plan.

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