

South Foreland to Beachy Head SMP

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(* Action Plan is a stand alone document)

1 INTRODUCTION

1.1 *The Shoreline Management Plan*

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. In doing so, an SMP is a high-level document that forms an important part of the Department for Environment, Food and Rural Affairs (Defra) strategy for flood and coastal defence (Defra, 2001).

This document provides the first revision to the original South Foreland to Beachy Head SMP (1996). Figure 1.1 shows the area covered by the SMP.

1.1.1 *Guiding principles*

The SMP is a non-statutory, policy document for coastal defence management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning¹. It does not set policy for anything other than coastal defence management.

The SMP promotes management policies for a coastline into the 22nd century, to achieve long-term objectives, while being technically sustainable, environmentally acceptable and economically viable. It is, however, recognised that given the difference between short and long term objectives, changes to management policy in the short term may be unacceptable. Thus the SMP provides a high level step by step management plan for meeting objectives with appropriate management change i.e. a 'route map' for decision makers to move from the present situation towards a more sustainable future.

The policies that comprise this plan have been defined through the development and review of shoreline management objectives, representing both the immediate and longer term requirements of stakeholders, for all aspects of the coastal environment. Together with a thorough understanding of the coastal processes operating on the shoreline, these objectives provide a thorough basis upon which to appraise the benefits and impacts of alternative policies, both locally and plan area wide. In this way, the selection of policy takes equal account of all relevant features in identifying the best sustainable management solutions.

The original SMP for this area (identified as coastal process sub-cell 4c in a 1994 study for MAFF, now Defra) was one of the first to be completed in England or Wales. Since that time many lessons have been learned. A review funded by Defra (2001) has examined the strengths and weaknesses of

¹ The planning reforms under the Planning and Compulsory Purchase Act 2004 identify a requirement for Regional Spatial Strategies (the new regional level statutory planning document) and Local Development Documents (the new local level statutory planning document). These are required to contribute to the achievement of sustainable development and are supported by a range of government planning policy advice and guidance, in particular Planning Policy Statements (PPSs) and their predecessors Planning Policy Guidance Notes (PPGs). This advice and guidance shapes and directs planning at the regional and local level.

various plans and revised guidance was issued by Defra in 2003. Some of this guidance is targeted at achieving greater consistency in the assessments and presentation of these plans, but there are more fundamental issues that have been identified, which this and other SMPs must address.

One significant issue is the inappropriateness of certain policies which, when tested in more detail with a view to being implemented, may be found to be unacceptable or impossible to justify either economically or technically. It is therefore important that this revision of the SMP is realistic, given known legislation and constraints, and does not promise what can not be delivered. There is no value in a long-term plan which has policies that are driven by short-term politics and cannot be justified once implementation is considered several years in the future. Equally, whilst selection of the preferred plan has considered the affordability of each policy, its adoption by the authorities involved does not represent a commitment to fund its implementation. Ultimately, the economic worth of policy implementation must be considered in the context of budgetary constraints (whether private or government funding), and it cannot be guaranteed that budgets will be available for all policies.

Equally, the plan must also remain flexible enough to adapt to changes in legislation, politics and social attitudes. The plan therefore considers objectives, policy setting and management requirements for 3 main epochs; from the present day, medium-term and long-term (corresponding broadly to time periods of 0 to 20 years, 20 to 50 years and 50 to 100 years respectively). There is a need to have a long-term sustainable vision, which may change with time, but should be used to demonstrate that flood and coastal defence decisions made today are not detrimental to the achievement of that vision.

1.1.2 Objectives

The objectives of the SMP are as follows:

- to define, in general terms, the flooding and erosion risks to people and the developed, historic and natural environment within the SMP area over the next century
- to identify the preferred policies for managing those risks
- to identify the consequences of implementing the preferred policies
- to set out procedures for monitoring the effectiveness of the SMP policies
- to inform planners, developers and others of the risks identified within the SMP and preferred SMP policies when considering future development of the shoreline and land use changes
- to comply with international and national nature conservation legislation and biodiversity obligations
- to highlight areas where knowledge gaps exist

1.1.3 The SMP Policies

The shoreline management policies considered are those defined by the Defra (2001) report, they are:

Hold the line	maintain or upgrade the level of protection provided by defences.
Advance the line	build new defences seaward of the existing defence line.
Managed realignment	allowing retreat of the shoreline, with management to control or limit movement

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

1.2 Structure of the SMP

The recommended plan and policies presented in this SMP are the result of numerous studies, assessments and discussions performed over a period of time. To provide clarity for different readerships, the documentation to communicate and support the plan is provided in a number of parts. At the broadest level, these are divided into two; the Shoreline Management Plan itself, and a series of supporting appendices.

1.2.1 The Shoreline Management Plan

This document provides the management plan for the next 100 years and the policies required for it to be implemented. This is intended for general readership and is the main tool for communicating intentions. Whilst the justification for decisions is presented, it does not provide all of the information behind the recommendations, this being contained in the supporting documents.

The plan is presented in five parts:

- Section 1 gives details on the principles, aims, structure and background to its development.
- Section 2 provides details of how the SMP meets the requirements of a Strategic Environmental Assessment (SEA).
- Section 3 presents the basis for development of the Plan, describing the concepts of sustainable policy and providing an understanding of the constraints and limitations on adopting certain policies.
- Section 4 presents the preferred Plan at high level for the SMP as a whole, discussing the rationale, implications, and requirements to manage change. The coastline is considered in four broad sections.
- Section 5 provides a series of statements for each of the 30 coastal policy units that detail the location-specific policies proposed to implement the preferred Plan and the local implications of these policies.
- Section 6 presents the Action Plan, which sets out the process for the implementation of SMP recommendations.

Although it is expected that many readers will focus upon the local details in Section 4, it is important to recognise that the SMP is produced for the coast as a whole, considering issues beyond specific locations. Therefore, these statements must be read in the context of the wider-scale issues and policy implications, as reported in Sections 3, 4 and the Appendices to the Plan.

Following consultation, an action plan will be added to this plan document, providing a programme for future activities which are required to progress the plan between now and its next review in 5 to 10 years time

1.2.2 SMP supporting documents and appendices

The accompanying documents provide all of the information required to support the plan. This is to ensure that there is clarity in the decision-making process and that the rationale behind the policies being promoted is both transparent and auditable. These are supported by a Glossary of Terms.

This information is largely of a technical nature and is provided in nine Appendices:

- A. SMP Development: This reports the history of development of the SMP, describing more fully the plan and policy decision-making process. The remaining documents effectively provide appendices to this report.
- B. Stakeholder Involvement: All communications from the stakeholder process will be provided here, together with information arising from the consultation process.
- C. Baseline Process Understanding: Includes baseline process report, defence assessment, No Active Intervention (NAI) and With Present Management (WPM) assessments and summarises data used in assessments
- D. Thematic Review: This report identifies and evaluates the environmental features (human, natural, historical and landscape) in terms of their significance and how these need to be accommodated by the SMP.
- E. Issues & Objective Evaluation: Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance.
- F. Initial Policy Appraisal and Scenario Development: Presents the consideration of generic policy options for each frontage, identifying possibly acceptable policies, and their combination into 'scenarios' for testing, together with the process assessment and objective appraisal for each scenario.
- G. Scenario Testing: Presents the policy assessment and appraisal of objective achievement towards definition of the Preferred Plan (as presented in the Shoreline Management Plan document).
- H. Economic Appraisal and Sensitivity Testing: Presents the economic analysis undertaken in support of the Preferred Plan.
- I. Metadatabase and Bibliographic database: All supporting information used to develop the SMP is referenced for future examination and retrieval.

1.3 The Plan Development Process

1.3.1 Revision of the SMP

The original South Foreland to Beachy Head SMP was completed in 1996. Part of the SMP process is to regularly review and update the plan, taking account of new information and knowledge gained in the interim. This is the first revision to that plan, which has taken account of:

- latest studies (e.g. Futurecoast (Defra 2002): a geomorphology-based project, which focuses upon providing an improved understanding of larger-scale coastal behaviour in the UK);
 - issues identified by most recent defence planning (i.e. the 5 coastal defence strategy plans which have now been produced to cover the majority of the SMP area between South Foreland and Beachy Head);
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- changes in legislation (e.g. the EU Habitat Directives); and
- changes in national defence planning requirements (e.g. the need to consider 100 year timescales in future planning on opposed to the 50 year timescale of the original SMP, modifications to economic evaluation criteria etc.).

Further reviews are anticipated to be carried out on a 5 to 10 year basis henceforth, although this timing will be driven by the availability of new information and advances in the understanding of this coastline (see Section 6.5).

1.3.2 Production of the 2006 SMP

Development of this revision of the SMP has been led by a project management group comprising relevant members of the South East Coastal Group. These include technical officers and representatives from Eastbourne Borough Council, Wealden District Council, Hastings Borough Council, Rother District Council, Shepway District Council, Dover District Council, East Sussex County Council, Kent County Council, the Environment Agency, English Nature and Defra.

The SMP process has involved over 25 stakeholder organisations at key decision points, through formation of a Key Stakeholder Forum (KSF). Meetings with the KSF have been held to help identify and understand the issues, to review the objectives and set direction for appropriate management scenarios. The stakeholders also reviewed and commented on the preferred plan policies.

SMP development has also been assisted by regular involvement of members representing each of the operating authorities (the councils and the Environment Agency), through an Elected Members Forum. This group comprised elected members from each of the councils (generally the relevant Cabinet Portfolio holder) and representatives of the two EA Local Flood Defence Committees. The EMF members have attended meetings with a remit from their organisation to 'inform and comment on' the developing stages of the SMP thereby providing some degree of input into policy development, by those who will ultimately be adopting the policies. The EMF has met at the same stages as the KSF, providing a review and informal approval of development and outputs (including matters arising from KSF discussions).

The SMP review is based upon original SMP information (1996), studies in between and information largely gathered between January and September 2003 and provided by numerous parties contacted during this period, this included contact with over 150 identified consultees in May 2003. This was followed up with information interpretation and further meetings with the key stakeholders, elected members and the steering group committee.

The main activities in producing the SMP have been:

- development and analysis of issues and objectives for various locations, assets and themes, including meetings with the Key Stakeholders and Elected Members;
 - thematic reviews, reporting upon human, historic and natural environmental features and issues, evaluating these to determine the relative importance of objectives;
 - analysis of the impact of coastal processes and coastal evolution for baseline cases of not defending and continuing to defend the coastline as at present;
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- agreement of objectives with the Key Stakeholders and Elected Members, to determine possible policy scenarios;
- development of policy scenarios based on key objectives and primary drivers (agreed with the Key Stakeholders and approved by the Elected Members) for sections of the frontage;
- examination of coastal evolution in response to these scenarios and assessment of the implications for the human, historic and natural environment;
- determination of the preferred plan and policies through review with the Key Stakeholders and Elected Members, prior to compiling the SMP document, and
- consultation on the proposed plan and policies (this stage).

Following consultation, further actions will be to consider responses and finalise the SMP for formal adoption.

2 Environmental Assessment

2.1 Background

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

This section identifies how the Draft South Foreland to Beachy Head SMP achieves the requirements of the 2004 Regulations. The text is sub-divided into sections representing the key requirements of the Regulations, and identifies the sections of the SMP documentation in which the relevant information is presented.

2.2 The Appraisal Process

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. The SMP is a non-statutory, policy document for flood and erosion risk management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning. It does not set policy for anything other than coastal defence management.

Full details on the background to the SMP and the appraisal process are set out in Chapters 1 and 2, with the exact details of the procedure followed in development of the Plan set out in Appendix A.

2.3 Stakeholder Engagement

Stakeholders have been involved in the SMP appraisal process, through the formation of a Key Stakeholders Forum (KSF) and an Elected Members Forum (EMF) is one of the key changes from the first SMP. This involvement has:

- been undertaken throughout development of the SMP;
- given stakeholders an opportunity to comment on the environmental appraisal of options; and
- allowed representations made by the stakeholders and the public to be taken into account in the selection of policy options.

The KSF includes representatives from interests including local authorities, nature conservation, industry and heritage. This group has met periodically throughout the SMP development process to

input information and review outputs as the study progressed. The EMF comprises a representative from each of the local authorities and the Environment Agency, attending with a remit to agree the various stages of the SMP as it progresses. Again, this group has met throughout the plan development, agreeing to the outputs once they have been discussed with the KSF.

In this way, the views of those whom the SMP policies will affect are involved in its development, ensuring that all relevant issues are considered, and all interests represented. The interests of landowners and residents have been represented through the involvement of Elected Members, and the views of all stakeholders are now sought through the present consultation process on the recommended policies.

Full details of all stages of stakeholder engagement undertaken during development of the draft Plan are presented in Appendix B. This includes the copies of briefing materials and records of stakeholder inputs.

2.4 *The Existing Environment*

The coastline covered by this plan has a rich diversity in its physical form, human usage and natural environment. This includes the dramatic white cliffs of Beachy Head and Langdon Cliffs, the vast lowlands of the Dungeness peninsula and Pevensey Levels, large urban areas fringing the coast, extensive areas of agricultural land, and many areas designated and protected for their heritage, landscape, geological and biological value. This combination of assets creates a coastline of great value, with a tourism economy of regional importance.

The current state of the environment is described in the 'Thematic Review', presented in Appendix D to this report. This identifies the key features of the natural and human environment of the coastline, including commentary on the characteristics, status, relevant designations, and commentary related to the importance of the features and the 'benefits' they provide to the wider community. The benefits assessment is provided in support of the definition of objectives (see 2.5, below).

In addition to the review of natural and human environment, the extent and nature of existing coastal defence structures and management practices are presented in the 'Defence Report' in Appendix C.

This is supplemented by the 'Shoreline Dynamics and Interactions' baseline report, in Appendix C, which identifies the contemporary physical form of the coastline and the processes operating upon it.

2.5 *Environmental Objectives*

An integral part of the SMP development process has been the identification of issues and definition of objectives for future management of the shoreline. This was based upon an understanding of the existing environment (2.4), the aspirations of Stakeholders (2.3), and an understanding of the likely evolution of the shoreline under a hypothetical scenario of 'No Active Intervention' (Appendix C), which identifies the likely physical evolution of the coast without any future defence management and hence potential risks to shoreline features.

These objectives include all relevant plans, policies, etc associated with the existing management framework, including all identified opportunities for environmental enhancements.

The definition and appraisal of objectives has formed the focus of engagement with stakeholders during development of the SMP (as identified in Appendix B). The full list of issues and objectives defined for this SMP are presented in Appendix E, which is supplemented by background information provided in the Thematic Studies (Appendix D).

Appendix G includes consideration of how the objective, and hence the 'environment', would be affected under the 'No Active Intervention' scenario, also their achievement under the policy options considered feasible for that frontage, with consideration of international and national designations and obligations and biodiversity. Chapter 5 of this document also details consideration of the potential environmental effects of the preferred policies.

2.6 Identification and Review of Possible Policy Scenarios

As identified in Chapter 1, the SMP considers four generic policies for shoreline management. Appendix F presents the results of the initial consideration of these policies to define 'policy scenarios'. This identifies those options taken forward for detailed consideration, and identifies why the alternatives have not been considered.

The 'policy scenarios' defined, have then been appraised to assess the likely future evolution of the shoreline, from which the environmental impacts can be identified. The process appraisal of these scenarios is presented in Appendix G. The results of this evolution, in terms of risks to coastal features, are then used to appraise the achievement of objectives for each scenario. This is reported in the issues and objectives table in Appendix G.

2.7 Environmental Effects of the Preferred Plan

Based upon the outputs from the testing of policy scenarios (Appendix G), the preferred plan has been defined. This is reported for the whole SMP frontage in Chapter 4, with specific details for each Policy Unit presented in Chapter 5.

Chapter 4 includes the 'Plan for Balanced Sustainability' (4.1) defining the broad environmental impacts of the plan, based upon the appraisal of objectives. This chapter also presents the 'Predicted Implications of the Preferred Plan' (4.2) under thematic headings.

The thirty individual Policy Units in Chapter 5 each present the Plan for the Unit identifying the justification, and then presents the policies to achieve the Plan over the 100 year period, presenting the detailed implications of the policies and identifying any mitigation measures that would be required in order to implement the policy.

2.8 Monitoring Requirements

Where the preferred plan for any Policy Unit has specific monitoring or detailed study requirements, to help clarify uncertainties, such as rates of erosion and detailed calculations of assets at risk, this is identified in the relevant 'Policy Unit Statement' (Chapter 5). Particular requirements relate to further (or ongoing studies) at the following locations:

- Folkestone Warren
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- Hythe Ranges
- Lydd Ranges
- Jury's Gap to The Suttons, Camber
- River Rother to Cliff End
- Fairlight Central

Detailed monitoring and definition of mitigation requirements will be undertaken as part of strategy studies, rather than the SMP.

3 Basis for Development of the Plan

3.1 Historical Perspective

The shoreline throughout much of the area covered by this SMP is retreating, and has been doing so for centuries. This is very much part of a natural process which has been taking place as sea levels have slowly risen and land levels have gradually dropped, both being the long-term consequences of the last ice-age. Erosion is therefore nothing new, and neither is flooding; historically there have been numerous major breaches along this coastline at Pevensey, Bulverhythe and across the Dungeness foreland.

There are well recorded losses of communities along the coast in the past centuries, which are evidence of this long-term natural change; these include Old Winchelsea and the original settlement at St Leonard's.

These events all took place well before the shorelines were defended to the extent they are at present. Therefore, although humans may have impacted upon the change occurring at the shoreline, they have not caused it. Equally, there is no reason to suggest that dynamic change is still not taking place, nor that we should assume that it will not continue to take place in the future. Coastal defence works carried out in the past have not prevented natural change from occurring they have simply delayed its full implications from being felt. This is the main approach to the management of erosion and shoreline retreat that has been used in the past, but it becomes increasingly difficult with climate change increasing the rate of sea level rise and the number and severity of storm events. The decision to be made now is how we are going to manage this change in the future.

3.2 Sustainable Policy

3.2.1 Coastal processes and coastal defence

Climate Change

The coastline is undergoing constant change due to large scale impacts of climate change, namely sea level rise, through to the day-to-day effects of waves and tidal currents. It is the implications of climate change that will determine sustainable shoreline management into the future.

Much of the present shoreline of the English Channel has been shaped by sea level rise during the Holocene period, i.e. following the last glaciation. Flooding of the English Channel commenced from the west as sea levels rose, and by approximately 10,000 years ago had reached Beachy Head. By c.8,000 years ago the entire English Channel, including the Dover Straits, was inundated. Shortly after, the shallow land separating this water body from the North Sea was breached, initiating a strong eastward current and sediment transportation in the eastern channel.

Sea level attained a level close to its present position around 5,000 years ago, and the modern hydrodynamic regime has been operating since this time. In the early stages of this period, the onshore migration of significant quantities of sediment led to major episodes of coarse sediment accumulation. This resulted in the formation of shingle barriers, that, rolled back to form the present shoreline position, and indeed much of the present beaches. It is probable that shingle from the South

Downs (Selsey Bill to Beachy Head) coastline was once delivered onto this frontage around Beachy Head. However rising sea levels have now cut-off this source.

Over the last 2,000 years sea level rise has continued, but at much lower rates resulting in ongoing, but less dramatic, changes at the shoreline. However, we are now entering a period of accelerating sea level rise, which will result in changes to the present coastal systems.

Recent climate studies have indicated that there are significant changes occurring within our climate; with bigger storms, increasing rainfall and rising sea levels. The amount of physical change depends on the degree of exposure of each length of coast and the underlying geology. Increasing rainfall in-between longer periods of dryer weather can lead to increased weathering of cliff faces, with potentially more cutback of the chalk cliff face due to massive failure along internal joints (as per Beachy Head). These changes have usually taken place overlong historical periods and many examples exist where settlements have been lost through erosion (e.g. St Leonards).

It is extremely important that the long-term plan in the SMP recognises these future issues and reflects likely future constraints to management planning. Thus the SMP acts as early warning to those other plans and initiatives that are vital to the communities and infrastructure within the coastal zone.

Changes at the coast

We are also now living with a relict resource of sediment, as inputs from offshore and the chalk cliffs to the west no longer exist. This problem has been exacerbated on this section of the south coast where there is very limited contemporary natural input of sediment into local beaches, and there has been substantial development along much of the coastline.

The reclamation of extensive areas of former coastal lowland for agriculture and development has also produced many areas where the shoreline is today artificially seaward of its natural position. Natural processes of barrier beach extension and inlet closure have been followed by human intervention to construct embankments and drain the backing land for agricultural production. This process has created the large low lying areas of the Pevensy Levels and Dungeness peninsula. The coastal frontages of these would naturally form shingle ridges that would have transgressed long distances landward long before now, if it were not for the man made defences holding them in place.

As already discussed, the erosion of the shoreline is nothing new; this is an ongoing process. However, we are more aware of it now than in the past and it is likely to increase. However, it is not just the shoreline that is changing, but the whole coastal system, i.e. the backshore, beach and nearshore (sub-tidal) zone. Along much of the south east coastline, this movement is occurring in a landward direction as sea levels rise, with the shoreline responding to the increase in energy reaching it from the sea. Although attention is focussed upon the shoreline position, this process also produces a deepening of the seabed at any particular point. That change in seabed level is evidenced by narrower and steeper beaches along much of the frontage. This in turn is associated with large sea defences and the effects of accelerating sea level rise.

Had the lost settlements of Old Winchelsea and St. Leonards been defended, this would not have prevented foreshore lowering at these locations, i.e. they would today stand adjacent to very deep water. We should not expect the future to be any different, and as such the future foreshore level at

existing defence locations may be anticipated to be much lower than present beach levels. Indeed, accelerated sea-level rise will increase the magnitude and speed of change.

If we choose to continue to defend our shorelines in the same locations that we do at present, then the size of the defences will need to alter considerably; one consequence of deeper water is much larger waves reaching the defence (as a shallow sea bed absorbs much of the energy of approaching waves). Defences will need to be wider to remain stable against bigger waves, have deeper foundations to cope with falling beach levels, and be greater in height to limit the amount of water passing over the top of them in storms.

Sediment movement

Beaches and low lying coastal floodplains provide a natural form of defence that react to storm waves; they do not prevent further erosion but do help to limit and control the rate at which this takes place. A wide and reasonably high beach offers greater protection than a low and narrow one. They also form environmentally important habitats. On a naturally functioning coastline, the alongshore movement of sediment eroded from cliffs provides beaches with material locally and further afield. A sustainable shoreline sediment system is one that is allowed to behave dynamically without any alongshore and cross-shore disruption due to coastal erosion and flood risk management.

However, defences constructed to protect developments on coastal slopes and cliffs on this SMP frontage have resulted in only limited sections of the shoreline being free to erode, providing little material to the shoreline system and insufficient to add significant amounts of beach building material. Along this frontage groyne have also been constructed on many sections of the shoreline, retaining sand and shingle that would naturally be carried eastwards along the foreshore by littoral drift (alongshore transport). The implementation of these various defence schemes, along with other management practices along the majority of the frontage, has led to a progressive denudation of sediment along this SMP coastline, causing narrowing and steepening of the foreshore and exposing the upper shore and its defences to increased wave attack. Beach replenishment and recycling practices (mechanically adding or moving shingle) have been used as a method to reduce the rate at which this shoreline change is taking place.

The extent of current defence structures, together with the fact that the contemporary beach sediments are effectively a finite relict resource, means that the shoreline today is generally in an 'unnatural' form and position. As such, much of the shoreline would not necessarily revert to the 'natural' coast, of the sustainable ideal outlined above, if we simply allowed it to operate unmanaged. Indeed, it is likely that for much of the SMP frontage, the removal or failure of defences would result in the total breakdown of beaches, leaving little or no barrier to erosion and flooding of the backing land. On the large lengths of shoreline backed by low lying land this would cause inundation of the flood plain, creating a new shoreline and habitat in the process along the landward edge of the low lying area.

In reality, the legacy of defence structures throughout this frontage has created a shoreline that is today so managed and artificial that it is effectively almost completely man made, with little real opportunity to use natural evolution of the coast as a means of satisfactorily managing the shoreline.

Defence impacts

In general, there is less of an acceptance of change than in the past and it is apparent, through the developments of SMPs and strategy studies, that there is often a public misconception that coastal change at the coast can and should be halted through engineering works. There is often a demand to continue to hold the existing defence line to protect assets, but this is coupled with an expectation that the shoreline will continue to look exactly as it does now. Due to the dynamic nature of our coasts, this concept is incorrect in many, if not all, instances.

If we continue to attempt to defend into the future as we have done in the past, the long-term picture would see the exacerbation of the existing situation, with a very fragmented shoreline, characterised by long lengths of concrete frontage with little or no beach, interspersed by sections of eroding cliffs. As a consequence of rising sea levels and diminishing beaches, seawalls will be exposed to deeper water, requiring much more substantial defences to be constructed. If these frontages were to be adjacent to unconstrained 'soft' shorelines (e.g. a barrier beach) the hard frontage may form a significant promontory, increasing its exposure to waves and currents. The defences may need to be extended landward to prevent outflanking of the present seawalls. As the beaches reduce and disappear, groynes will become redundant and water will remain present at the structures at all times. A present day version of how this may look is illustrated by the defences at Samphire Hoe (Policy Unit 4c04), although the exposure of the defences here is the result of seaward development rather than sea level rise.

It must be recognised that, in the very long term, continuing to defend such long stretches of shoreline with increasing exposure may become technically and economically unsustainable and consideration to relocate, or mitigate, for loss of assets should be considered in the future. Even where this point is considered to fall outside the SMP timescale (i.e. beyond 100 years), it is still very important to recognise that maintaining current alignments will not be possible indefinitely.

3.2.2 Economic sustainability

One of the difficulties facing us as a nation is the cost of continuing to protect shorelines to the extent that we do at present. Many of the defences that exist today have been the result of reactive management without consideration of the long-term consequences, including financial commitment.

Studies over the past few years have established that the cost of maintaining all existing defences is already likely to be at least 50% more than present expenditure levels. In simple terms this means that either more money needs to be invested in coastal defence, or defence expenditure has to be prioritised. Whilst it is more than likely that the first option would clearly be the preference of those living or owning land along the coast, this has to be put into context of how the general UK taxpayer wishes to see their money used. Given that the cost to provide defences that are both effective and stable currently averages between £3million and £5million per kilometre, the number of privately owned properties that can be protected for this investment has to be weighed up against how else that money can be used, for example education, health and other social benefits.

Furthermore, because of the climate changes being predicted, which will accelerate the natural changes already taking place; these recent studies have also established that the equivalent cost of providing a defence will increase during the next century to between 2 and 4 times the present cost, excluding inflation or other factors, i.e. in excess of £6million to £10million per kilometre. Consequently

those areas where the UK taxpayer is prepared to continue to fund defence may well become even more selective and the threshold when an area is no longer defended could well shift. Whilst it is not known how attitudes might change, it is not unreasonable to assume that future policy-makers will be more inclined to resist investing considerable sums in protecting property in high risk areas, such as the coast, if there are substantially cheaper options, such as constructing new properties further inland.

The implications of these national financial constraints are that protection is most likely to be focussed upon areas where there are large amounts of assets potentially at flooding or erosion risk, where the highest level of benefit would be achieved for the investment made, i.e. more properties could be protected per pound of investment. The consequence is that rural communities will often be more affected, but from a national funding perspective, i.e. best use of the taxpayer's money, this makes economic sense.

3.2.3 Environmental sustainability

Environmental sustainability is a concept that is frequently debated. As it depends upon social attitudes, which are constantly changing, it is therefore difficult to define. In the purest sense however environmental sustainability is habitats that are self perpetuating.

Historically, communities at risk from coastal erosion relocated, recognising that they were unable to resist change. In more recent times many coastal defences have been built without regard for the impacts upon the natural environment. Today, because we have better technology, we are less prepared to accept change, in the belief that we can resist nature. Inevitably attitudes will continue to alter; analyses of possible 'futures' are already taking place (e.g. Foresight Future Flooding, 2004), considering the implications for many aspects of life, including approaches to flooding and erosion under different scenarios. It is not possible to predict how attitudes will change in the future; therefore the SMP is based upon existing criteria and constraints, whilst recognising that these may alter over time to accommodate changing social attitudes.

Quality of life depends on both the natural environment and the human environment, which are discussed below.

Natural Environment

The forces of nature have created a variety of landforms and habitats along the South East coastline. The special quality of the natural habitats and geological/ geomorphological features on this coast is recognised in a number of local, national and international designations, protected under statutory international and national legislation, as well as regional and local planning policies.

There is a *legal* requirement to consider the implications of any 'plan or 'project' that may impact on a Special Protection Area (SPA) or candidate Special Area of Conservation (cSAC), through the European Union Habitats Directive (Council Directive 92/43/EEC) and Birds Directive (Council Directive 79/409/EEC). The Defra High Level Target for Flood and Coastal Defence (Target 4 – Biodiversity) also requires all local councils and other operating authorities to:

- avoid damage to environmental interest;
 - ensure no net loss to habitats covered by Biodiversity Action Plans;
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- seek opportunities for environmental enhancement; and
- report progress in implementing actions that contribute to SSSI PSA Target and all losses and gains of habitats resulting from flood and coastal erosion risk management operations to the Environment Agency.

A key requirement for the SMP is therefore to promote the maintenance or enhancement of biodiversity, through identifying biodiversity opportunities.

Coastal management can have significant impact on habitats and landforms, both directly and indirectly. In places, coastal defences may be detrimental to nature conservation interests, e.g. slope protection structures at Folkestone Warren inhibit natural movements of the landslide complex, but in other locations the presence of defences sustains, albeit temporarily, the present interests of a site, e.g. freshwater habitats at Pevensy, however one must recognise that this may be at the 'expense' of alternative, more dynamic habitats i.e. saltmarsh. Coastal habitats may also form the coastal defence, e.g. the sand dunes at Camber. Therefore coastal management decisions need to be made through consideration of both nature conservation and risk management.

Although the conservation of ecological features in a changing environment remains key, in terms of environmental sustainability, future management of the coast needs to allow habitats and features to respond and adjust to change, such as accelerated sea level rise. It is recognised that true coastal habitats cannot always be protected in situ because a large element of their ecological interest derives from their dynamic nature and this is important to ensure the continued functionality of any habitat. This poses a particular challenge for nature conservation and shifts the emphasis from 'preservation' to 'conservation'. English Nature are actively seeking to ensure that coastal erosion and flood risk management proposals are designed to ensure that SSSIs are conserved and where possible enhancement opportunities that benefit ecology and geology are implemented, whilst also allowing the coast to remain naturally dynamic. Under Section 28G of the Countryside and Rights of Way Act 2000, English Nature is provided with the responsibility and power to safeguard England's finest and most vulnerable wildlife and geological features. Therefore, accommodating the objectives of environmental bodies, such as English Nature, and future change requires flexibility in the assessment of nature conservation issues, possibly looking beyond the designation boundaries to consider wider scale, or longer term, benefits.

The SMP also needs to consider opportunities for enhancing biodiversity throughout the SMP area, not just at designated sites. It has been identified that one of the main biodiversity opportunities within this SMP area may be gained through allowing dynamic coastal processes to continue shaping the coastal environment e.g. the rolling over of the shingle beach and ridge fronting Lydd Ranges. There are several other areas along this frontage where biodiversity opportunities can be taken. Ensuring the provision of space free from development is one such example, this facilitating the on-going landslide activity at the Folkestone Warren complex, thereby improving the geological and ecological status of the site. This, however, needs to be balanced against the socio-economic objectives for the area.

Human (Socio-Economic) Environment

The human environment covers such aspects as land use (both current and future), heritage and landscape (which may be both natural and man-made).

Land-use:

Historically, development of the coast has taken place unconstrained. Planning Policy Guidance 20 (PPG20: Coastal Planning) identifies that approximately 30% of the coastline of England and Wales is developed with much of this development taking place before the introduction of the Town and Country Planning Act 1947. Growth of built development, both commercial and residential, within the coastal zone over the centuries has increasingly required engineering works to defend properties and assets against the risk of erosion and flooding. However, continued construction of hard-engineered coastal and flood defences to protect development may not be economically sustainable in the long-term (see Section 3.2.2). Local Development Frameworks now identify the need for 'sustainable development' (section 39 of the recently reformed Planning and Compulsory Purchase Act, 2004); although the exact definition of this is uncertain, it recognises that opportunities for development on the coast are limited due to risk of flooding, erosion, land instability and conservation policies (as discussed above). PPG20 states that in the coastal zone, development plan policies should not normally permit development that does not require a coastal location.

The (draft) South East Plan builds upon this, adopting a catchment wide approach to water management and acknowledging the links between biodiversity, water quality and flood and erosion risk management. Policies NRM6 (coastal zone management) and NRM3 (sustainable flood risk management), in particular, require local planning authorities to take account of Shoreline Management Plans, with the former advocating an integrated approach to coastal planning and management.

Although the popularity of many British seaside resorts has declined in recent years, seaside tourism still represents a substantial part of the local economy. The towns of Dover, Folkestone, Hythe, Hastings, Bexhill and Eastbourne all have important tourism economies, and many also having significant retirement communities, largely drawn by the coastal location. Many other parts of the SMP coastline are reliant upon tourism income from facilities such as caravan parks, at Camber and Cliff End. Thus the impacts of policy on the tourism industry need to be carefully considered. In addition to the tourist industry, there are many other major commercial interests along the coast. As well as the normal commercial and industrial activities associated with the towns along this coastline, there are also important fishing economies, and other major assets such as the Port of Dover and the Dungeness Power Stations. The continuation of these industries is essential to sustain the economy of the region as a whole.

The coastal strip also represents an important recreational and amenity resource; many activities rely on the presence of a beach or access to the sea. Although assets landward of current defences and access routes may be protected through maintaining existing defences, it must be recognised that continuing such defence practices would in the longer term result in a significant alteration in the nature of the coast, with large concrete seawall structures and narrow beaches.

Heritage:

Heritage features are valuable for a number of reasons (English Heritage, 2003):

- they are evidence of past human activity;
 - they provide a sense of place (or roots) and community identity;
 - they contribute to the landscape aesthetics and quality; and
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- they may represent an economic asset due to their tourism interest.

These assets are unique and if destroyed they cannot be recreated. Whilst they are vulnerable to any coastal erosion the very process of erosion is uncovering sites of historical interest. Only a few sites are protected by statutory law, but many more are recognised as being of high importance. Government advice in PPG15 (Planning and the Historical Environment) and PPG16 (Archaeology and Planning) promotes the preservation of important heritage sites, wherever practicable. However, due to the dynamic nature of our coastlines, this is not always possible, or sustainable. Therefore each site must be considered individual and balanced against other objectives at that location.

The long maritime history of this part of the South East coastline has resulted in a large number of important heritage sites, and areas with heritage potential, being present. Major heritage features include sites such as Dover Castle, the Martello Towers, the Royal Military Canal and Pevensey Castle, but there are a great many other features which shoreline management policy could potentially affect.

Landscape:

Many parts of the SMP coast are designated and protected for their landscape quality as Areas of Outstanding Natural Beauty and Heritage Coast. However, in general, landscape is difficult to value objectively as it is a mixture of the natural environment and social and cultural history. Therefore defining a sustainable landscape is usually dependent upon the human and natural environment factors discussed above.

4 THE PREFERRED PLAN

4.1 *Plan for Balanced Sustainability*

The SMP is built upon seeking to achieve balanced sustainability, i.e. it considers people, nature, historic and economic realities.

The recommended present-day policies for this SMP provide a high degree of compliance with objectives to protect existing communities against flooding and erosion. The recommended long-term policies promote greater sustainability for parts of the shoreline where natural process and evolution provide a practical means of managing the coastline. However, the protection of the significant assets present along much of the shoreline remains a strong focus for the long-term sustainability of the economy and communities of this area.

The rationale behind the proposed plan is explained in the following sections of text, which consider the SMP area as a whole. This is presented under three frontages; the cliffed coast in the west of the SMP (section 4.1.1); the low lying Dungeness peninsula (4.1.2); and, the predominantly cliffed coast intersected by low lying areas, to the west (4.1.3). These subdivisions broadly reflect differing process and risks.

Details of the preferred policies for individual locations to achieve this Plan are provided by the individual Policy Unit statements in Section 5.

4.1.1 *South Foreland to Sandgate*

The eastern section of the SMP coastline is characterised by coastal cliffs and slopes, with chalk cliffs from South Foreland through to Abbot's Cliff in the east, progressing into sands and clay in the relict cliffs of Folkestone. The only break in this cliff line is created by the former valley of the River Dour at Dover. The undeveloped sections of this frontage are designated for their nature conservation and landscape value, an important feature in setting future management policy.

The towns of Dover and Folkestone both provide regionally important centres supporting a wide range of residential, commercial and industrial activities that service other communities in the area and are key locations for local trade, including the tourism industry. Dover is also a main cross-channel port, of importance for the whole South East of England. There is very strong justification for seeking to prevent erosion of these particular frontages and the consequent loss of properties and services. However, ongoing sea level rise will result in the narrowing and possibly the loss of beaches at these locations.

Both Dover and Folkestone have harbour structures at the coastline which provide a significant barrier to eastward alongshore sediment movement. It is envisaged that these structures will remain in place over the next 100 years, maintaining this barrier. However, there is very limited sediment naturally available on this coast, such that alongshore drift is not a significant process. Sediment volumes on downdrift frontages will be affected by these structures, but are unlikely to be dramatically worse than if they were not there.

The other major development creating a sediment transport barrier on this frontage is Samphire Hoe, a development formed by the deposition of spoil from the construction of the Channel Tunnel within a protective seawall. This site holds important ventilation infrastructure associated with the Channel Tunnel, and is today a valuable amenity and environmental area. These features, together with the potential for massive siltation of the coastline to the east were defences allowed to fail, make it important to protect and maintain this feature in the long term.

An important strategic rail link runs between Dover and Folkestone, with sections tunnelled through the cliff at Shakespeare Cliff and Abbot's Cliff as well as running across the cliff toe at Samphire Hoe and Folkestone Warren. It is envisaged that ongoing retreat of the cliffs at Abbot's Cliff would result in a breach of the tunnel within 100 years. It is likely that even if toe defences were constructed, the sub-aerial weathering would ultimately result in retreat of the cliff face back to the rail tunnel. As such, it is recommended to allow this ongoing erosion to continue in the knowledge that the rail line will become inoperable at some point within the next century. This fact is accepted by Network Rail and, in due course, consideration will need to be given to management of this loss, i.e. if or how it should be replaced. Once the rail line ceases to operate, it will no longer be viable to maintain the massive toe defences at Folkestone Warren, leading to the long term reactivation of landsliding activity on the backing slope. Over time, this will result in erosion risks to the properties of Capel-le-Ferne, although losses are only likely to occur at the end of (or possibly beyond) the 100 year SMP timeframe.

The plan to allow continued erosion of the chalk cliffs between South Foreland and Dover, and at Shakespeare and Abbott's Cliffs, will maintain the important environmental and landscape value of these areas. The return of Folkestone Warren to natural functioning in the long term will also improve the environmental quality of this site. All of these policies will result in the input of sediment to the shoreline, providing the only contemporary source of material for local beaches.

4.1.2 Sandgate to Cliff End (Dungeness peninsula)

This section of the SMP coast covers the vast low lying area of the Dungeness foreland. This creates a potential flood risk area which includes over 22,000 hectares of agricultural land and around 16,000 properties, together with infrastructure such as roads and rail lines, the nuclear power stations, Lydd Airport, numerous tourist facilities, many heritage sites, and large areas of international nature conservation importance. Given the extent of assets at risk, it is considered imperative that flood defence continues to be provided for the whole of the peninsula over the next 100 years. The SMP plan provides a strategic approach to the management of this potential risk, identifying how and where defences should be provided.

The peninsula primarily has two forms of coastline: sections formed in shingle ridges created during the progressive evolution of the peninsula, e.g. Lydd Ranges and Denge Beach; and the very low lying sections formed on alluvial materials which are essentially the result of fine sediment deposition behind barrier beaches and historic reclamation, e.g. Dymchurch and Pett Levels. These two coastal forms warrant differing approaches to the management of flooding risks, based upon their ability to form a 'naturally functioning' coastline.

On the 'alluvial' (fine sediment) frontages the land behind the existing beach/defences is generally lower than the beach itself, and significantly lower than mean Spring tide levels. The majority of these frontages are heavily managed at present as there is little natural supply of shingle due to the lack of

contemporary sediment input to the shoreline from updrift or offshore. When combined, these factors create a situation where the construction of defences set back from the current coastline, to allow some natural reorientation of the shoreline, would require greater engineering works, with potentially significantly higher associated costs. It is considered unlikely that this would offer any real benefits in terms of coastal processes; indeed localised set back could increase the exposure of adjacent frontages. If primary defences were removed or allowed to fail there would be an immediate breakdown of the beach and inundation of large areas of backing low lying land (providing there were no set-back/secondary defences).

However, a strategic long-term approach to coastal management that presents solutions utilising sediment management needs to be developed. A key aspect of sustainable shoreline management is to determine a viable location for future shorelines in response to on-going sea level rise. It is considered likely that this would offer real benefits in terms of facilitating coastal processes and other associated environmental benefits, particularly if implemented across adjacent frontages.

On the 'shingle' frontages, the shingle ridges create a slightly raised topography behind the current coastline and provide a potential source of beach forming material for the local and downdrift frontages. Most of these areas remain linked to the wider flood risk area, but importantly it is considered that on these frontages it would be possible to allow the free operation of coastal processes leading to the formation of a self sustaining barrier beach. This would promote the alongshore movement of the existing shingle resources, and enhance the environmental value of the shingle habitats, which are considered to be of international importance. As stated above, these frontages do still have a flooding risk, so any return to natural beach functioning will require secondary embankments to limit flood propagation, but these would not form the primary line of defence, as would be the case in the alluvial areas.

The one other notable environment present on the peninsula is that of the sand dunes at Camber and Romney. These are ancient features, thought to be formed by the reworking of sediments deposited at the coast by rivers (the Brede, Tillingham and Rother at Camber, and the former outfall of the Rother at Romney). These features locally provide a natural addition to flood protection.

The approaches to management outlined above have been combined to develop the plan for whole peninsula, seeking to minimise the overall flooding risk, whilst providing technical (reduced engineering) and environmental enhancements where feasible. For the frontage east of the River Rother (following the alongshore drift direction, rather than SMP unit order), this plan is achieved by the following local approaches.

- Management of the dunes at Camber to maintain their environmental and recreational value and ensure continued flood protection. The continued presence of Rye harbour arms and terminal groyne, and the local sediment drift reversal should continue to produce accretion on this frontage.
 - Maintenance and improvement of defences on the alluvial section between Camber and Jury's Gap, to protect the road and backing properties, and prevent inundation of low lying hinterland. Without sediment management (i.e. at this location recharge and recycling at the foreshore are required) the mixed shingle and sand beach fronting the defences will narrow and steepen. This will increase the exposure of the defences to
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wave attack but will not adversely interfere with alongshore sediment transport to the Lydd frontage.

- A return to a natural functioning coastline is promoted for Lydd Ranges, through the cessation of current beach management practices. This will allow the coast to re-orientate (up to 200m in 100 years), with the formation of a barrier beach locally, shingle feed to downdrift frontages, and strandline shingle vegetation being allowed to establish. Dependant upon the alignment of set back defences, this will involve the long term loss/inundation of parts of the military ranges.
- At the eastern extremity are the Dungeness nuclear power stations, which will be protected over the next 100 years although their decommissioning before then would allow some realignment on this frontage. This will be assisted by natural shingle inputs from Lydd and, it is anticipated that sediment movement across the frontage will be maintained.
- The frontage between the power stations and Romney Sands (north of the Ness point) is experiencing ongoing shingle accretion due primarily to change in coastal orientation and a sediment drift reversal it creates. This accretion is expected to continue under the SMP plan, increasing the area of shingle habitat and also the level of protection to the backing flood risk area. Extraction of shingle from this frontage currently provides the source for nourishment of beaches along the south face of the peninsula. This is a practice that is likely to reduce or stop in the future, and consequently deposition/accretion rates will increase.
- To the north of Romney Sands the coast returns to low lying alluvium (with the exception of the Romney sand dune complex), where the plan is to protect the many assets backing the current defences. These include the villages of Dymchurch, St Mary's Bay and Littlestone-on-Sea, the road and light railway, and the assets in the backing flood risk area. This will be achieved through maintenance and improvement of the existing defences. This will however result in the narrowing, and possibly loss, of the beach on this frontage. This effect may be partially offset by some feed from the south, if extraction for nourishment is reduced on the adjacent frontage, possibly releasing some sediment to move northward.
- The next frontage is Hythe Ranges, which again has shingle deposits that will facilitate a return to natural functioning in the long term. Here it is proposed to defend the current alignment until existing structures fail, thereafter allowing the shingle to be reworked to form a natural beach with the associated process and habitat benefits. Again, set back flood embankments will be required to minimise flooding risks to the backing hinterland.
- The last section of the Dungeness flood area covers Hythe through to Sandgate. This is a low lying alluvial section, where the plan is to maintain protection to the assets immediately behind the beach and in the wider flood area. This will result in narrowing of the fronting beach, potentially impacting upon the tourism economy of the area. Sediment feed into the Folkestone frontage will be minimal.

This plan provides a coherent approach to managing the flooding risks throughout the Dungeness peninsula. The one area not covered above is the extreme western part between the Rother and Cliff End. This section has a low lying alluvial area between Cliff End and Winchelsea Beach, and a shingle section between Winchelsea Beach and the Rother harbour arms. Current defences involve a set back flood embankment behind the shingle section and hard defences along the front of the alluvial

section. It is proposed to maintain these defences in the medium term, protecting the existing assets including homes, a road, the Royal Military Canal and caravan parks; but to promote realignment into the low lying frontage in the longer term. Realignment is possible here as the flood plain is relatively sparsely populated, and there is higher ground to which a secondary defence alignment could be tied into, limiting the extent of potential flood propagation. This approach will reduce the long term defence requirement by utilising higher ground as the new coastline. The alignment of secondary defences to limit flooding have not been defined by the SMP, but to achieve the benefits of allowing the coast to retreat it is anticipated that there would be a managed loss of developments close to the current coast.

This approach will allow the ongoing reworking of shingle deposits on the Winchelsea Beach to River Rother section. This sediment will continue to accumulate against the western harbour arm and the terminal groyne at its end. It is possible that, in the long term, part of the terminal groyne could be removed to allow the movement of material across onto the Dungeness south shore, feeding the beaches to the east. However this could potentially affect Rye Harbour navigation, and sediment deposition at Camber, meaning that this process would need to be heavily controlled if it were promoted.

4.1.3 Cliff End to Beachy Head

The western section of the SMP frontage comprises a series of cliffs intersected by low-lying areas fronted by heavily managed shingle barrier beaches. The frontage includes the towns of Hastings, Bexhill and Eastbourne all of which form regionally important centres that warrant long term protection. The frontages of these towns are dominated by a combination of tourism related developments (e.g. hotels and attractions) and residential properties. The frontage also has a number of smaller settlements, e.g. Fairlight Cove and Pevensey Bay, at risk from erosion or flooding.

Throughout this frontage the beaches fronting developments are largely formed of relict or imported material, and are heavily managed. There are little or no alongshore sediment linkages to provide beach forming material from one section to another, other than in a controlled manner such as the recycling operations around Pevensey and Normans Bay. The extent of developments at the shoreline makes significant changes to this situation impractical in the SMP timescale. Thus the plan presented is based upon achieving the best solutions to local management of risks, taking regard of alongshore linkages, rather than seeking an idealistic 'linked' coast. The following sections present the plan, following the direction of the alongshore linkages (west to east), rather than the direction of the SMP units.

Beachy Head forms the western end of this frontage, and the boundary with the adjacent South Downs SMP. The cliffs are nationally important for their geological, biological and landscape interest and the wave cut chalk shore platform at the base is at least of regional importance for its marine wildlife, geology and maritime heritage. This area of frontage is largely undeveloped and undefended. The chalk cliffs are eroding at a slow rate, forming a limited supply of beach forming material to the local and downdrift shoreline. It is proposed that this source will be maintained over the next 100 years, sustaining the nature conservation and landscape value of frontage. This input will assist maintenance of beaches on the Eastbourne frontage, although the quantities involved will not be sufficient to offset the effects of rising sea levels, which will result in narrowing beaches at Eastbourne. The western section of the frontage has cliffs which gradually reduce in height, leading into the low lying frontage of Eastbourne. The tourism economy of Eastbourne is of regional importance and

maintenance of the important features, including the promenade, pier and seafront amenities, is crucial. The existence of a beach along this frontage is dependent upon shingle renourishment and ongoing recycling operations, as well as the presence of groynes. Were these management practises to cease, it is likely the beach would be lost completely with the material moving alongshore and offshore, rather than forming a 'dynamically functioning' shoreline. These factors, and the importance and value of the range of assets within the flood risk area, mean that the only practical solution to management of this frontage is to maintain the current shoreline alignment. However, in the long term, this will require increasing levels of hard defence and narrowing and/or the possible loss of the beach, with little or no sediment through to the Pevensy and Bexhill frontages. Long term planning to enable future 'flexibility' of the shoreline, thus providing the most sustainable form of coastal management, is therefore critical.

Immediately east of Eastbourne is the Sovereign Harbour development, where a marina and extensive residential and commercial developments have been constructed on 'The Crumbles' shingle deposits. The value of this development and its contribution to the amenity and tourism economy make its protection important. However, the development prevents the release of this shingle resource to the shoreline system, which could potentially benefit beaches downdrift if it were allowed to erode. Without this input, the beaches will narrow due to rising sea levels, such that it is likely that there will be little or no beach here in 100 years time and hard defence structures or beach renourishment will be required. The presence of harbour arms associated with the development; exacerbate this effect limiting sediment movement from the Eastbourne frontage. The plan for downdrift frontages is developed on the basis that there will be no sediment naturally released from this frontage.

The low lying part of Eastbourne, and Sovereign Harbour, form part of the large flood risk area of the Pevensy Levels. The coastal frontage of this area extends through to Cooden, and is a heavily managed shingle beach. The assets at risk from inundation within this flood area include over 5,000 hectares of agricultural land, over 18,000 properties, the A259 road, a rail line, many heritage sites and areas of international importance for their freshwater habitats. The majority of the built assets are within the Eastbourne urban area; however there are a number of developments immediately backing the beach, including Pevensy Bay, Beachlands and Normans Bay. The situation along the frontage between Sovereign Harbour and Cooden is similar to that described for the alluvial sections of Dungeness, with very low lying land behind the shoreline making the provision of set back defences more costly, both economically (as substantial structures would have to be newly built) and environmentally (because of the 'footprint' required to achieve this plus the loss of existing assets) than maintaining and improving the current alignment. The existence of a beach along this frontage is entirely dependant upon shingle renourishment and ongoing recycling operations and the presence of groynes. Were these management practices to cease it is likely the beach would be lost completely with the material moving alongshore and offshore, rather than forming a 'naturally functioning' self sustaining shoreline. These factors, and the importance and value of the range of assets within the flood risk area, mean that the only practical solution to management of this frontage is to maintain the current shoreline alignment. However, this will require increasing levels of hard defence in the long term, with narrowing and possible loss of the beach, and little or no sediment through to the Bexhill frontage.

Through Cooden, Bexhill, Bulverhythe and Hastings the coast is largely formed of low cliffs of a gentle slope, with the exception of the Coombe Haven valley at Bulverhythe. As with the frontages to the

west, the long history of intervention has resulted in a heavily managed shoreline protecting the almost continuously developed coast. The only sediment feed along this frontage is a very limited amount currently released from the Pevensey frontage. There are significant seawalls and while the long term plan is to protect the assets of this frontage, there will be significant losses of beach with sea level rise. There is certainly the justification to maintain defences in the long term, however there will be significant visual changes to the frontage, with higher, more robust defences required in the longer term and narrower disappearing beaches, impacting on the character of the frontage.

At Hastings it is recommended that the Harbour Arms are maintained as, although they hold up shingle from moving along the coast to the east, they protect much of Hastings and support a locally important fishing industry. Also, the release of the sediment held by the arms would only provide a short term pulse of sediment to the adjacent shoreline, with little long-term benefit.

To the east of Hastings the cliffs are largely undefended through to Cliff End, with the exception of the rock bund at Fairlight Cove East (Sea Road).

At Fairlight Cove West the undefended cliffs are retreating. The village edge, however, is set some way from the cliff top such that there are unlikely to be any property losses until the latter part of the 100 year period. As such, the plan here is to allow the cliffs to continue to retreat.

At Fairlight Cove Central (Rockmead Road) there are ongoing losses of clifftop properties resulting from the recent reactivation of landsliding activity on a section of the cliffs fronting the village. Whilst these losses are anticipated to continue in the future, the rate of clifftop retreat will reduce following the recent initial period of rapid movement. Based upon the projected future property losses to cliff retreat, it is considered that works may be economically justified and environmentally acceptable pending further consideration through detailed review. Reflecting this, the plan here is to undertake works to limit or stop retreat in the short/medium term, but with a return to slope erosion/retreat in the longer term, in order to develop a more sustainable and dynamic shoreline; this being in line with the adjacent frontages.

The rock bund at Fairlight Cove East has been designed to reduce, but not prevent, erosion. This is necessary due to the cliffs along this section being important geological features. As such, the plan for Fairlight Cove East is to maintain the current management and associated benefits throughout the residual life of the bund. Thereafter the presence of the structure will remain but the effectiveness, as a result of sea level rise, will reduce. This approach will allow the erosion of the sand and clay cliffs to continue, thereby maintaining the important habitats, geological exposures and landscape quality of the frontage. It will, however, result in the loss of some properties and other undeveloped cliff top areas. This policy will provide a limited input of beach forming material to the shoreline, thus benefiting the fronting and downdrift beaches.

4.2 Predicted Implications of the Preferred Plan

Direct comparison is made below between the proposed plan/policies and a no active intervention approach; this being the position if no money was spent on coastal defence. This approach defines the benefits of implementing the proposed plan, as it highlights what would be lost under no active

intervention against what would be gained if the preferred policy was implemented. Where no active intervention is the preferred policy then obviously this methodology is not required.

4.2.1 Implications for property and land use

For much of the SMP coastline the recommended plan is to maintain existing defences where it is economically viable, to do so, in the long term. This is to minimise loss of property and assets along this extensively developed coastline. However, for some significant sections of the coast, a change in management policy, or ongoing shoreline retreat, has been identified in the longer term where a long term hold the line policy will not be economically viable, technically sustainable, or environmentally acceptable. The SMP has identified areas where a more naturally functioning coastline would be to the benefit of the natural environment and to coastal processes. However, there would be potential losses to assets should this policy be implemented. The key areas of management change are at Pett Levels, Lydd Ranges and Hythe Ranges, where the long term technical sustainability of a hold the line policy is questionable (the long term military requirements for use of Lydd and Hythe Ranges is not known, although there is a demonstrable need for its operational use in the short and medium term) and where biodiversity opportunities can be taken to meet national targets.

For the recommended plan, the maximum number of houses lost due to cliff erosion by year 2025 would be 13. This compares to the no active intervention baseline where, losses throughout the SMP frontage could total 85 houses and 30 commercial properties. Consequently, the plan provides for protection from erosion to around 100 properties over the next 20 years. By year 2055, however, housing losses as a result of coastal erosion would total a maximum of 27, with cumulative losses of 115 by the year 2105, primarily at Fairlight Cove (96). This compares to the no active intervention baseline where cumulative house losses for the whole SMP frontage could total 800 by 2055, and over 3,300 by 2105 if protection measures were not afforded. The recommended plan therefore delivers protection to nearly 3,200 'at risk' properties over the next 100 years. The total commercial erosion losses under the preferred plan are anticipated to be just one property at Cliff End and one at Folkestone Warren by 2105, compared to the no active intervention baseline, where losses could be over 200 by 2055 and nearly 800 by 2105. Consequently, the recommended plan also provides for protection to nearly all 800 'at erosion risk' commercial properties over the next 100 years.

The above figures only relate to losses through coastal erosion. In addition, there are vast numbers of assets that could potentially be at risk from inundation under no active intervention policies on the flood risk frontages. These include 18,000 properties in the Pevensy Levels flood area, over 600 properties in Combe Haven (Bulverhythe) and 16,000 in the full Dungeness floodable area. This gives a total of 34,600 properties that could potentially be lost due to permanent or frequent inundation. Under the recommended policies the great majority of these assets will be protected although managed realignment options at a number of locations will result in some losses. At the River Rother to Cliff End frontage the long term realignment could potentially result in the loss of over 500 properties if the villages of Cliff End and Winchelsea Beach were allowed to flood. An alternative alignment, protecting these villages would involve the loss of up to 40 properties on the Pett Levels. It is likely that the actual alignment adopted would be somewhere between these two positions. At Lydd Ranges, again dependant upon the secondary defence line adopted, up to 28 properties could be lost, and no properties are threatened at Hythe Ranges. So as a worse case, in excess of 34,000 properties will be protected from permanent inundation by the recommended SMP policies.

Tourism is an important economic sector; whilst the key centres are Dover, Folkestone, Hastings, Bexhill and Eastbourne, caravan and holiday parks are spread out along the coast, often along the coastal edge. Along the developed frontages built assets will continue to be protected for the next 100 years, including important infrastructure such as promenades and piers. The long term realignment on the Pett Levels frontage will involve the loss of caravan parks at Cliff End and Winchelsea Beach. Also, the long term policy for Folkestone Warren will involve the loss of the caravan park on this frontage. While the majority of policies seek to protect tourism assets, it is important to recognise that many of these 'hold' policies will have a detrimental impact on tourism through the loss of beaches on the main urban frontages.

Agriculture also represents an important part of the local economy and along the coast there are various grades of agricultural land. Along undeveloped parts of the SMP coast, cliff top agricultural land is at risk from ongoing erosion of undefended cliffs. These areas will continue to experience losses in the future although nowhere are these anticipated to be significant. The main areas of potential agricultural land loss are on the flood risk areas. The proposed realignment at Pett Level could involve the loss of around 500 to 700 hectares of Grade 3 and 4 land, dependant upon secondary defence alignment. However, under the no active intervention scenario for the flood risk areas, a total of around 28,000 hectares of Grade 2, 3 and 4 land would be at risk.

Another asset that will be affected by the recommended policies is the military ranges at Lydd and Hythe. Managed realignment policies for both frontages will result in the reduced operation and possible loss of these facilities, dependant upon the alignment of secondary defences.

Other major infrastructure in this area includes the Port of Dover and the Dungeness Power Stations, both of which will be protected under the recommended policies. It is also anticipated that the local fishing fleets operating from a number of locations on this frontage will be catered for under the recommendations, although beach launching will become increasingly problematic in areas where beach narrowing or loss is predicted.

4.2.2 Implications for nature conservation

Shingle beaches are the dominant coastal form throughout this SMP area, and whilst only parts of the frontage have conservation and geological designations associated with the shingle, the habitat is covered throughout by Local and National Biodiversity Action Plans (BAPs), targets for which include "no further net loss". As such, a notable consequence of the recommended policies to maintain and improve defences on many frontages will be the long term reduction and possible loss of shingle beaches. However, in other areas policies are promoted to improve the extent and quality of coastal shingle habitats in the long term. The realignment at Cliff End to River Rother will allow the free functioning of the available shingle resource, although this will only be realised in the longer term. The realignment for Lydd Ranges seeks to return the shingle resource on this long frontage to free functioning, with the associated development of natural strandline vegetation. This will involve some loss of the shingle area, but this is considered to be a natural process that is beneficial to the overall site. This loss will also be offset by the ongoing shingle accretion north of Dungeness Ness Point. The realignment at Hythe Ranges will also result in an improvement in the quality of the shingle habitat.

The low lying areas along this frontage are also notable for their freshwater habitats, which are also covered by Local and National BAPs and much of which are designated as of international or national

importance. The policies to continue defending along the Pevensey Levels will result in a continuance of large freshwater areas in the backing levels, the highest quality sections of which are considered to be the areas close to the shoreline. Similarly the freshwater habitats in the Combe Haven Valley will remain in-situ under a hold the line policy for Bulverhythe. The large areas of important freshwater habitat on Dungeness will largely be protected by the series of policies providing long term protection for the large flood risk area. However, the long term realignment at Pett Levels would involve the loss of SPA and Ramsar designated freshwater habitats. This represents a significant loss that will potentially require mitigation through the creation of equivalent habitat elsewhere, probably on the Dungeness peninsular. However, the creation of intertidal habitats and promotion of a 'naturally functioning' coast under this policy provide important nature conservation benefits i.e. improving the existing habitats and creating new, dynamic habitats.

Maritime cliffs and slopes are also the subject of Local and National BAPs, and again many of the cliff sections in this area are also covered by specific nature conservation designations. The policy to allow continued erosion of the chalk cliffs at South Foreland to Dover, Shakespeare Cliff, Abbot's Cliff and Beachy Head, complies with BAP targets, as does the recommended ongoing erosion of sand/clay cliffs at Copt Point and between Cliff End and Hastings. The one exception here is Fairlight Cove Central where, in the short to medium term, a policy of Hold the Line has been recommended, with natural processes being re-activated in the long term. At Fairlight Cove East the plan allows for "erosion" of the cliffs to improve the quality of this nationally important feature, although the existing rock bund reduces the rate of that retreat. The other significant improvement in cliff/slope quality will come with the long term reactivation of landsliding at Folkestone Warren. These policies will all invariably involve some loss of cliff top habitats, but this is reflective of a dynamic coastal environment.

Most of the conservation designations covering these cliffs and slopes also recognise and protect the earth heritage (geological/geomorphological) importance of the features. On these cliffs it is desirable to maintain active erosion to create clean exposures of the interest features. As outlined above, the recommended plan will involve the continued erosion of those cliff sections currently free to erode, will promote increased erosion of the currently defended cliffs at Fairlight Cove (East), i.e. achieved by not upgrading the existing defence structure, and a reactivation of toe erosion on the Folkestone Warren landslide complex. Cliff frontages will continue to be protected at a number of locations, although this will maintain, not cause detriment to, the existing situation.

There are also Local and National BAPs associated with littoral and sub-littoral chalk which supports important marine communities. The preferred policies of allowing cliff retreat on the chalk cliff frontages outlined above should provide for continued exposure of these platforms, which are likely to be revealed as the cliffs retreat in response to sea level rise. The SMP cannot, however, combat the potential submergence of the existing platforms as a result of sea level rise in the long-term.

The other important habitat, for which there are Local and National BAPs, is coastal dunes, of which there are areas at Camber and Romney Sands, both of which are designated as Sites of Special Scientific Interest (SSSI). The policies for these frontages provide for the maintenance of the current extent of the dunes.

4.2.3 Implications for landscape

Many sections of this coastline are recognised and protected for their landscape quality through designation under the Kent Downs, High Weald and Sussex Downs Areas of Outstanding Natural Beauty (AONB), and the Dover-Folkestone, Folkestone Warren (Copt Point) and Sussex Heritage Coasts. There are also many areas designated as being of 'local' or 'special' landscape value.

The recommended long-term plan for the SMP is to sustain the current urban areas through proactive management of the existing beaches, recognising that new linear defences will be needed in the long term. However, opportunities for forming a free functioning dynamic coastline in limited areas has been taken to create a more natural coastal landscape, reducing the extent of man-made structures on the beach. This is deemed to provide a more aesthetically appealing coastal landscape than a policy of defending the whole coastline, which would involve construction of new, more substantial defences.

In general, the plan will maintain the landscape quality of the frontages designated as AONB or Heritage Coast. However, it is recognised that the long term loss of beaches on defended sections will detract from the quality of the coastal landscape at those locations.

4.2.4 Implications for the historic environment

The long history of settlement along this stretch of coast has resulted in a wide range of heritage sites. A large number of the heritage sites are associated with former military defences and the associated infrastructure such as the Martello Towers, castles, gun emplacements and pillboxes, most of which are located immediately adjacent to the shoreline. Those assets behind sections of coast where defences will be maintained and improved will be protected in the long term. Significant protected features include Dover Castle, Sandgate Castle, Dymchurch Redoubt, Lade Fort, Hastings Castle, Eastbourne Redoubt and Wish Tower, and a number of Martello Towers. These sites are Scheduled Ancient Monuments (SAM), but there are also many unscheduled sites of importance that are protected, along with areas of archaeological potential. Many listed buildings and Conservation Areas within the urban areas will also be protected under the recommended plan.

However, the policies which promote long term erosion or realignment will invariably impact upon the historic environment, as the coverage of the coastal heritage resource is so extensive. Erosion of sections of chalk cliff east of Folkestone will result in the loss of many assets associated with the 'military landscape' of this area, including WWII pillboxes and other military defence structures. The erosion of Copt Point will allow the ongoing loss of the Folkestone Roman Villa SAM and the associated areas of archaeological potential. The realignment of Hythe Ranges will potentially result in the loss of two SAM Martello Towers, along with the sites of a number of others. At Lydd Ranges heritage losses will include historic military structures such as the Green Wall. The long term realignment at Pett Levels would involve the loss of the western end of the Royal Military Canal SAM, and part of a structure that links through to Sandgate. However, it is anticipated that historic structures at Rye Harbour would be protected. Cliff erosion between Cliff End and Hastings will result in the loss of heritage sites including the long term progressive loss of the Iron Age Cliff Castle site at Hastings, and heritage potential areas between Fairlight and Hastings. No specific heritage sites are identified as being at risk due to cliff erosion at Beachy Head.

These losses under the recommended long term plan for this SMP must be recognised, and it will be important that an appropriate programme of survey, recording and investigation is implemented to facilitate preservation by record of these important sites, and those potential features not yet identified.

4.2.5 Implications for amenity and recreational use

The coast is an important area for tourist and recreation use, with key interests concentrated along the coastal strip. Under the preferred long-term plan, the key centres of tourism and recreation of Dover, Folkestone, Hastings, Bexhill and Eastbourne, will continue to be protected to maintain assets but this will be at the expense of some beach loss along these frontages. As sea level rises, deeper water with higher energy wave conditions are created, submerging the lower part of the beach, which will make the retention of an amenity beach difficult. The promenades along these sections will also become more exposed to overtopping and thus less accessible.

Where the coast is allowed to retreat there will be potential access issues, with existing access routes often being lost, e.g. at Hastings Country Park. However in some places it will be a necessity for these to be re-established, due to health and safety obligations.

This SMP coastline is extensively covered by coastal footpaths, including the North Downs Way (Dover to Folkestone), Saxon Shore Way (South Foreland to Hastings (in part along the Royal Military Canal), and the South Downs Way (west of Eastbourne). Sections of these footpaths will be lost at varying times on the sections of coast where erosion or realignment is allowed. There is potential however, subject to planning consents, for these to be realigned as the shoreline retreats.

4.3 Managing the Change

The consequences of the long-term management plan for this coast cannot be understated. However, the inevitability of necessary change to past policies needs to be recognised. Continued defence, as in the past, is unsustainable in the long-term for particular frontages and it is unrealistic to present proposed policies that indicate continued defence of an area where this is unlikely to be sustainable or economically justifiable.

To achieve this change will, however, require consideration of the consequences at various levels of planning and government. There will be matters that need to be debated at a national level, as the issues that have been identified by this plan are not limited to this coast and will exist several times over around the UK. It is not possible to achieve complete sustainability from all perspectives and quite probably national policies will need to be developed to help resolve the dichotomies.

4.3.1 Recommendations

It is expected that achieving this plan may require changes in planning and policy at local, regional and national government levels. At a time when regions are being charged with increasing the national housing stock, there may need to be compensatory provisions made to offset the losses that will result from this plan and others. These provisions may, for example, include making other land available for building, to offset the losses arising from this plan. Regional planning needs to consider the messages being delivered by this Plan, and ensure that future proposals for regional development and investment are made accordingly. Such planning needs to be looking beyond the current 20 year horizon.

Local planning should consider the risks identified in this plan and avoid approving development in areas at risk of flooding and erosion. Local planning also needs to consider that relocation of displaced people and property may require land to be made available within the same settlements to maintain the same level of community and may need to become increasingly flexible to enable this. Locations for new developments may need to be identified.

There also needs to be acceptance by environmental bodies that achieving some nature conservation commitments should be considered as part of a long-term vision for a dynamic coastal environment. However, in the short-term there is the need to ensure that conservation interests within designated sites, or in the wider environment, are appropriately addressed by coastal management. In order for long-term solutions to be sought, public and local communities should be involved. English Nature has published a Maritime Strategy entitled 'Our Coasts and Seas: making space for people, industry and wildlife' (available from the English Nature website²) to help deliver this.

To accommodate retreat and the consequential loss of property and assets, whether due to coastal erosion or flooding, local operating authorities will need exit strategies. These will need to address the removal of buildings and other cliff-top facilities well in advance of their loss to erosion. The plans for relocation of people also need to be established as does the basis on which mitigation should be funded. However, mitigation measures do not fall solely upon national and local government, and should not be read as such within this plan. Business and commercial enterprises will need to establish the measures that they need to take to address the changes that will take place in the future. This includes providers of services and utilities, which will need to make provision for this long-term change when upgrading or replacing existing facilities in the shorter term. They should also consider how they will relocate facilities that will become lost to erosion or flooding, and the need to provide for relocated communities. Other parties needing to consider mitigation measures will be the local highways authorities and bodies responsible for local amenities (including churches, golf clubs etc).

Private land and property owners will also need to consider how they will deal with these changes due to policy not guaranteeing central government funding. Currently there is no obligation for the operating authorities or national government to assure protection against flooding or erosion. Similarly, there is no reason, at present, to assume that this will change in the future or that individual losses would be recompensed from central funds. Policy therefore, has not been set only on the basis of likely Defra funding, as private funders, such as Railtrack, have their own agenda and the 'Priority Score System', which Defra currently uses, may change in the future. The preferred plan has been drafted instead on an objective based appraisal of technical, environmental and economic aspects.

However, the preferred Plan provides a long lead-in time for the changes that will take place, which in general will not happen now, but will occur at some point in the future. To manage these changes effectively and appropriately, the approach put forward in the SMP needs to be considered now, not in several decades time. The Action Plan in Section 6 sets out the steps to be taken in delivery of the SMP.

² www.english-nature.org.uk

5 Policy statements

5.1 Introduction

This section contains a series of statements presenting the preferred policy and implications for individual locations. These provide local detail to support the SMP-wide preferred plan, presented in Section 4, and consider locally-specific issues and objectives, which are presented in the Annex to this document. Consequently, these statements must be read in conjunction with those and in the context of the wider-scale issues and policy implications as reported therein.

5.2 Content

Each Policy Statement contains the following:

Policy Unit/Location reference This provides the general name used for reference to each policy unit and the number identifier which is sequential along the shoreline from east to west or clockwise direction (numbering is based upon the sub-cell number [4c] followed by a unit number).

Plan This is a statement summarising the preferred plan and describing the rationale behind it. These focus upon the long-term plan but also note any different short-term requirements.

Preferred policies to implement the plan This describes the policies and activities that will be undertaken in the short, medium, and long-term to implement the preferred plan. In this respect, "Present day policy" is broadly representative of the next 20 years, "Medium term policy" 20 to 50 years, and "Long term policy" 50 to 100 years. These timescales should not be taken as definitive, but should instead be considered as phases in the management of a location.

Implications of the recommended plan for this location This Table summarises the consequences *at this location only* resulting from the preferred policies. These are categorised as "Property & Land Use", "Nature Conservation", "Landscape", "Historic Environment" and "Amenity & Recreational Use", and correspond with information being entered into the national database of SMPs. The implications have been assessed for the situation in terms of each epoch: short (present to 2025), medium (2025 to 2055) and long term (2055 to 2105), again to provide a nationally consistent picture.

Review of alternative policy options This Table identifies the key reasons why the alternative shoreline management policies (Section 1.1.3) have not been recommended *at this location only*. This is a summary of the appraisal of shoreline evolution and objective achievement for these alternatives.

5.2.1 Policy Units

Based upon the preferred scenario, Policy Units are identified representing frontages for which a discrete shoreline management policy applies. These are divided to reflect changes in policy over time, and significant differences in policy implications. Figure 1.1 shows the full plan area, and identifies the subdivision into Policy Units.

The following list identifies the Policy Units for which statements are provided, together with a brief summary of the characteristics that define the Unit, and the page number on which the full statement can be found:

			Page No.
4c01	South Foreland to Dover	An undefended section of chalk cliffs of high landscape and environmental interest. The cliff top is largely undeveloped, including the coastal footpath and South Foreland lighthouse.	36
4c02	Dover	Dense urban area, with the coast dominated by the Port. The majority of this frontage is enclosed by the outer harbour breakwaters. Throughout the frontage developments extend to the cliff/shoreline edge.	39
4c03	Shakespeare Cliff	An undefended section of chalk cliffs of high landscape and environmental interest. The Dover to Folkestone railway line runs through the cliffs, and the village of Aycliff is set slightly back from the cliff top.	42
4c04	Samphire Hoe	Platform created from the deposition of Eurotunnel spoil within a protective seawall. The site is now a significant recreational amenity as a Country Park and also includes critical infrastructure for the Eurotunnel, and the Dover to Folkestone railway line runs along the cliff toe at the back of the site.	45
4c05	Abbots Cliff	An undefended section of chalk cliffs of high landscape and environmental interest. The Dover to Folkestone railway line runs through the cliffs. The cliff top is largely undeveloped, with the A20 set slightly inland.	48
4c06	Folkestone Warren	Major landslide complex, of geological and ecological importance. The toe of the landslide is heavily defended as the Dover to Folkestone rail line runs across the lower part of the landslide. The village of Capel-le-Ferne lies close to cliff top edge.	51
4c07	Copt Point	Area of cliff top amenity open space, including assets of heritage importance. Residential developments of Folkestone are set back from the cliff top.	55
4c08	Folkestone and Sandgate	Dense urban area extending to edge of coast, including reclaimed cliff toe areas. The seafront is of significant amenity importance, and includes Folkestone Harbour.	58
4c09	Sandgate to Hythe	Low lying area forming the eastern extreme of the Dungeness flood risk area. Frontage includes the town of Hythe, which extend to the edge of the beach, together with extensive areas of amenity space, and the Royal Military Canal. The beach has a high amenity value throughout the frontage.	62
4c10	Hythe Ranges	Largely open area formed of shingle deposits, used by the MoD as a firing range, with the associated infrastructure. The Ranges are partially backed by Hythe developments. This frontage links through to the Dungeness flood risk area.	65
4c11	Dymchurch to Romney Sands	Largely developed frontage formed of very low lying land. Includes areas of nature conservation importance. Forms a large section of the coastal margin of the Dungeness flood risk area.	68
4c12	Romney Sands to Dungeness	Linear developments set back from the accreting shingle coastline. The shingle creates a raised topography reducing the flooding risk to assets on this frontage. The shingle habitats are of nature conservation importance.	72

			Page No.
4c13	Dungeness Power Station	Two nuclear power stations developed close to the shoreline, protected by heavily managed shingle bund. The site is surrounded by important habitats.	76
4c14	Lydd Ranges	This is a predominantly shingle area forming an important MoD training facility. There is associated infrastructure throughout the site. The area is of high nature conservation importance, and links through to the Dungeness flood risk area. The Jury's Gap Coastguard Cottages are included in the west of the unit,	79
4c15	Jury's Gap to The Suttons	Amenity beach backed by very low lying land, including the main coast road and properties at Jury's Gap. Forms a significant coastal link to the Dungeness flood risk area.	83
4c16	Camber Sands	Area of sand dunes with the settlement of Camber extending in places to the shoreline edge. Dunes are of nature conservation importance. The area is important for tourism amenities, including large caravan parks. Backed by Dungeness flood risk area.	86
4c17	River Rother	This unit comprises the Mouth of the River Rother upstream to the weirs around Rye, which limit tidal incursion. Includes areas of residential, amenity and industrial use adjacent to the river, together with Rye Harbour infrastructure.	89
4c18	River Rother to Cliff End	The coastal frontage protecting the low lying land of Pett Level and around Rye Harbour. The eastern part of the frontage has a wide shingle backshore of nature conservation importance, with a set-back flood embankment. To the west of Winchelsea Beach the hinterland becomes very low lying, with a heavily managed barrier beach fronting the environmentally important Pett Level. There are also developments behind sections of the beach ridge.	92
4c19	Cliff End to Fairlight Cove	Frontage of open cliffs of importance for their landscape and environmental/geological interest. Scattered cliff top properties towards Cliff End.	98
4c20	Fairlight Cove East (Sea Road)	Section of the cliff top village with an existing cliff toe defence limiting the rate of erosion. The cliffs are of environmental/geological importance. Properties extend to the edge of the cliff top.	101
4c21	Fairlight Cove Central (Rockmead Road)	Section of cliff top village fronted by higher cliffs (than to east) forming an active landslide complex, involving ongoing loss of cliff top properties. The cliff is of environmental/geological importance.	104
4c22	Fairlight Cove West	Section of village set back from the cliff top, behind an area of open space. The cliff is again of environmental and geological importance.	108
4c23	Fairlight Cove West to Hastings	Length of open coast of high landscape and environmental/geological importance. There are no significant cliff top developments, and includes Hastings Country Park.	111

			Page No.
4c24	Hastings	Dense urban development extending to the edge of the low coastal slope. The town is fronted by a shingle beach of amenity importance, which supports a local fishing fleet at its eastern end.	115
4c25	Bulverhythe and Glyne Gap	Largely low-lying frontage with extensive residential and industrial developments, together with important road and rail links. The frontage is backed by the Combe Haven Valley, which is of environmental importance and at flood risk.	119
4c26	Bexhill to Cooden	Dense urban area extending to the edge of low coastal cliffs and slope. The fronting shingle beach is important for its amenity/tourist use.	122
4c27	Hooe and Pevensey	Heavily managed barrier beach fronting the environmentally important Hooe and Pevensey Levels. There are developments along/behind sections of the beach ridge, together with scattered development and infrastructure in the flood risk area.	127
4c28	Sovereign Harbour	Major marina development extending to beach edge, built on area of extensive shingle deposits. This frontage links through to the Pevensey/Hooe flood risk area.	131
4c29	Eastbourne	Dense urban development with low-lying sections to the east, moving to cliffs in the west. The seafront is an important, and popular, tourism/amenity area.	134
4c30	Beachy Head	Internationally important landmark site, of significance for its landscape, geological and environmental value. The cliff top is largely undeveloped.	138

The remainder of this report presents the individual Statements for each Policy Unit.

Location reference: *South Foreland to Dover*

Policy Unit reference: *4c01*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

South Foreland marks the eastern extremity of the SMP frontage. The steep chalk cliffs from St. Margaret's Bay to the east of Dover are unprotected and eroding. This area is of high nature conservation and landscape value, with little cliff-top development. The long term plan is to allow continued cliff erosion, which will maintain the important geological and biological interests of the frontage and its landscape quality.

Preferred policies to implement Plan:

From present day: The present day policy for South Foreland is to continue allowing natural processes i.e. erosion of the chalk cliffs, the rock platform and the cliff toe, under a **no active intervention** policy. This will maintain the landscape, an area of outstanding natural beauty, the designated biological and geological assets (Dover and Kingsdown SSSI), as well as a free functioning shoreline. Although some cliff top agricultural land will be lost, rates of cliff erosion are low and there are no built assets at risk. Historic military defence remains will become at risk from erosion over time, and these should be recorded as appropriate. Debris from erosion / cliff falls along with the fronting rock platform provides some natural shoreline protection to the cliffs making the implementation of defence works unviable. This policy is consistent with the medium and long-term policies.

Medium-term: The medium term policy for South Foreland is to continue allowing natural processes to take place i.e. erosion of the chalk cliffs and erosion of the shoreline under a **no active intervention** scenario. Rates of cliff erosion are likely to increase slightly during this epoch as a consequence of sea level rise.

Long-term: The long-term policy for South Foreland is **no active intervention**, with erosion of the chalk cliffs, the rock platform and the shoreline. Despite ongoing sea level rise, erosion and transportation rates, along this frontage, will remain low, thus the general character of this frontage, i.e. one of outstanding natural beauty, will not alter significantly. The coastal footpath (The Saxon Shore Way) may need re-routing over time, but very few built assets are threatened. Narrowing of the intertidal chalk platform is likely to occur with sea level rise, this is however a natural process which will be partially offset by the creation of a higher platform as the cliffs retreat. It is recognised that the sustainable shoreline at South Foreland is the eroding one, so this policy is recommended.

Location reference: *South Foreland to Dover*

Policy Unit reference: *4c01*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue	No built assets are at risk during this period. Some agricultural land lost.	Designated coastal landscape maintained	The continued erosion of the cliffs and a naturally functioning coast maintains the biological and geological assets	Some cliff top assets (remains of military defences) will be at risk due to cliff top erosion	The current amenity and recreational facilities will be maintained
2025 – 2055	Cliff erosion will continue	No built assets are at risk during this period. Some agricultural land lost.	Designated coastal landscape maintained	The continued erosion of the cliffs and a naturally functioning coast maintains the biological and geological assets	Some cliff top assets (remains of military defences) will be at risk due to cliff top erosion	The current amenity and recreational facilities will be maintained
2055 – 2105	Cliff erosion will continue	2 residential properties will be lost due to erosion. Some agricultural land lost	Designated coastal landscape maintained	The continued erosion of the cliffs and a naturally functioning coast maintains the biological and geological assets	Some cliff top assets (remains of military defences) will be at risk due to cliff top erosion	Cliff top erosion may affect some of the Saxon Shore Way

Location reference: **Dover**

Policy Unit reference: 4c02

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A dense urban area that extends to the shoreline, with a frontage that is dominated by the cross-channel port and associated development that has been defended since the 15th Century. The majority of this frontage is enclosed by the outer harbour breakwaters, but includes the defended frontage to the west, backed by the Dover to Folkestone railway line. The long term plan is to continue protecting the developments including the residential, commercial and industrial assets, from flooding and erosion. The town is of significant heritage importance (e.g. Dover Castle) and there are areas of local nature conservation importance (Western Heights) within the urban area.

Preferred policies to implement Plan:

From present day: The present day policy for Dover is to continue to **hold the line** by maintaining and improving the existing defences to protect the significant assets contained within the town and port; including assets that are important to the regional economy. This will be achieved by continuing to maintain the existing defences, i.e. the harbour arms, jetties, seawalls, groynes and shingle beach. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution, are likely to occur within this epoch or indeed the confines of the Shoreline Management Plan. In maintaining the defences, cliff erosion and subsequent sediment feed to the frontage is prevented. The presence of the harbour arms, which act as promontories, will continue to interrupt alongshore coastal processes.

Medium-term: To continue to **hold the line**. This will be achieved by maintaining and, at some point during this epoch, upgrading the defence structures. This will protect the significant built assets from sea level rise and increased scour as beaches denude.

Long-term: The significant built assets along this frontage dictate that the long-term policy is to **hold the line**. To accomplish this and to keep pace with sea level rise defences will need to be maintained and upgraded. Thus the character of this frontage is likely to change, from one that offers amenity facilities to one that is purely defensive. The intertidal area will narrow, with little or no beach building material entering the system, and retaining a beach in front of the substantial defence structures will become increasing difficult. The situation will be exacerbated as sourcing suitable recharge material is likely to become problematic and expensive in the future. Despite an impact on the character of the designated town and seafront, this recommendation is deemed technically and environmentally viable, for the duration of the Shoreline Management Plan, as the significant built assets are protected from flooding and erosion.

Location reference: *Dover*

Policy Unit reference: *4c02*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All properties and built assets are protected	Current landscape sustained albeit an altered/artificial one	Current marine and terrestrial habitats maintained	Terrestrial assets will remain protected. Heritage assets on the foreshore could be lost/damaged (due to sea level rise & construction)	Current amenity and recreational facilities maintained
2025 – 2055	Significantly increase engineering and management practices	All properties and built assets are protected	Increased engineering has an adverse effect on the land, shore and townscape	Terrestrial (freshwater) habitats maintained	Terrestrial assets will remain protected. Heritage assets on the foreshore could be lost/damaged (due to sea level rise & construction)	Some (shoreline) recreational facilities will be lost due to increased engineering i.e. beaches are expected to reduce. Beach narrowing could be mitigated against with re-nourishment however this option will only be viable for a set duration and will require careful consideration.
2055 – 2105	Significantly increase engineering and management practices	All properties and built assets are protected	Increased engineering has an adverse effect on the land, shore and townscape	Terrestrial habitats maintained, shingle beach may be lost	Terrestrial assets will remain protected. Heritage assets on the foreshore could be lost/damaged (due to sea level rise & construction)	Terrestrial recreational activities and amenities maintained

Location reference: *Shakespeare Cliffs*

Policy Unit reference: *4c03*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Eroding chalk cliffs of high conservation and landscape importance, with the railway line set into the cliffs and developments set back from the cliff top. The long term recommendation is to allow continued erosion of the cliffs, which will maintain the geological exposures and landscape quality of the frontage. The Dover to Folkestone railway line, the A20 and Aycliff developments are set back from the cliff face, and not considered to be at risk from erosion within the next 100 years. The Saxon Shore Way footpath is however likely to need re-routing.

Preferred policies to implement Plan:

From present day: The immediate policy for Shakespeare Cliffs is to continue with the current management practises, allowing natural processes to take place, (cliff erosion), under a **no active intervention** policy. Natural shoreline protection is provided by cliff fall debris and it is not necessary or visually desirable to defend this section of the coastline.

Medium-term: The medium term policy for Shakespeare Cliffs is to continue with **no active intervention**. With sea level rise and no defences protecting the toe it is anticipated that erosion rates will increase slightly during this epoch. Material released from the cliffs will provide some degree of cover to the foreshore.

Long-term: The long-term policy sees a continuation of **no active intervention** for Shakespeare Cliffs. This permits erosion of the chalk cliffs, narrowing of the chalk platform and shoreline retreat but maintains the coastal landscape, along with the biological and geological assets. With sea level rise the naturally functioning coastline will continue to provide sediment inputs to the foreshore, albeit at a slightly greater rate than those experienced historically, which may impact on some of the cliff top heritage assets although the remaining built assets will not be threatened. Generally the rates of feed and transportation, along this frontage are reasonably low and therefore the character of this frontage is not expected to alter significantly during the timescale of the Shoreline Management Plan.

Location reference: *Shakespeare Cliffs*

Policy Unit reference: *4c03*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (flint nodules and chalk) to the system	No built assets are at risk during this period	A nominal amount of land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	No assets are at risk	The current amenity and recreational facilities will be maintained
2025 – 2055	Naturally functioning coastline	No built assets are at risk during this period	A nominal amount of land is lost but the coastal landscape is maintained	Naturally functioning coastline	No assets are at risk	The current amenity and recreational facilities will be maintained
2055 – 2105	Naturally functioning coastline	Some cliff top assets may be come vulnerable/lost	Continued erosion will result in the loss of cliff top land. Landscape quality maintained	Naturally functioning coastline	Some heritage assets will be at risk/lost (WWII pillboxes)	Some amenity and recreational assets lost (The Saxon Shore Way)

Location reference: **Samphire Hoe**

Policy Unit reference: 4c04

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This frontage is a platform created from the deposition of Eurotunnel spoil within a protective seawall. A long term policy of maintaining the platform in its current form is recommended for this frontage. This will ensure the continued protection of critical infrastructure for the Channel Tunnel, including ventilation equipment, located on the eastern part of the platform, as well as sustaining the important recreational amenity of the Country Park and the valuable habitats that have developed on the site. Backing assets include the railway line, the A20 and the footpath, all of which will be protected. This approach will prevent active erosion of the environmentally important Chalk cliffs, although weathering will maintain a degree of clean exposures.

Preferred policies to implement Plan:

From present day: The present day policy for Samphire Hoe is to continue to **hold the line** and protect the assets by maintaining the existing seawall and rock revetment. Defending the assets means sustaining Samphire Hoe's artificial promontory, which affects alongshore sediment transport, however this impact is not significant due to the limited amount of mobile shoreline sediments in the area. Although the cliff top is protected, some weathering of the cliffs will still occur. However, any material will not enter the shoreline system as it will fall on the back of the platform.

Medium-term: The medium term policy for Samphire Hoe is to **hold the line**. In response to sea level rise it is anticipated that defence structures will need to be maintained and may require upgrading. With the shoreline being held seaward of its natural alignment and no inter-tidal area to dissipate wave energy, wave attack on the current defences is likely to increase.

Long-term: In continuing to **hold the line** and defend important infrastructure and other assets; the shoreline will be held seaward of its natural alignment, forming an ever increasing promontory, as adjacent frontages are allowed to function freely. Defences will have to be maintained, upgraded and potentially lengthened to prevent outflanking, in response to sea level rise, which exerts additional stress. The character of this frontage, over the Shoreline Management Plan time frame, will not alter significantly. As rates of feed and transportation along this frontage are low and impacts on evolution elsewhere are minimal, this recommendation is deemed sustainable on technical and socio-economic grounds. It is acknowledged that holding the line prevents a free functioning coastline as well as affecting natural coastal processes.

Location reference: **Samphire Hoe**

Policy Unit reference: 4c04

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Maintain current defences	All built assets, including the Channel Tunnel infrastructure, are protected.	Current landscape will be maintained	Current habitats will develop, cliff erosion and associated habitats prevented	Assets will continue to be protected	Current amenity and recreational facilities maintained
2025 – 2055	Maintain current defences	All built assets, including the Channel Tunnel infrastructure, are protected.	Current landscape will be maintained	Current habitats will develop, cliff erosion and associated habitats prevented	Assets will continue to be protected	Current amenity and recreational facilities maintained
2055 – 2105	Need to increase defences to compensate for sea level rise	All built assets, including the Channel Tunnel infrastructure, are protected.	Increased engineering potentially has an adverse effect on the developing landscape	Current habitats will develop, cliff erosion and associated habitats prevented	Terrestrial assets will continue to be protected, any foreshore assets could be lost/damaged due to ongoing sea level rise and further defence work	Current amenity and recreational facilities maintained

Location reference: **Abbots Cliff**

Policy Unit reference: 4c05

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Eroding chalk cliffs of conservation and landscape importance, with the Dover to Folkestone railway line set into the cliffs and developments set back from the cliff top. The shoreline is undefended and should remain so, to allow cliff erosion to maintain the important geological and biological features as well as the landscape quality. The A20 is not considered at risk from cliff top retreat within the time frame of the Shoreline Management Plan (100 years). However, it is possible that Abbotscliffe Tunnel, which carries the Dover to Folkestone railway, could be impacted at some point in the long term. If this were the case, the rail line in its current position may be threatened, although it is envisaged that the provision of this key strategic link would not be lost. Appropriate action regarding the future of this link would be considered prior to such a threat. The erosion will supply some sediment to the shoreline, although this is not a significant input. This approach will require the realignment of the coastal path when the cliff top retreats through its current alignment.

Preferred policies to implement Plan:

From present day: The present day policy for Abbots Cliff is to maintain natural processes, i.e. cliff erosion and shoreline retreat, with **no active intervention**. The rate of cliff erosion is slow and fallen debris provides some protection to the cliff base. This approach has no adverse effects, sustaining the biological, geological and landscape assets along with a free functioning shoreline. Some cliff top open land will be lost but no other assets are at risk during this epoch.

Medium-term: In response to sea level rise and a lack of defences it is anticipated that cliff erosion will increase slightly during this period under a policy of **no active intervention**. The effect of this on the railway will need to be monitored. Sediment feed from cliff erosion will offer some degree of protection to the foreshore before being transported downdrift and offshore.

Long-term: The long-term policy for Abbots Cliff is **no active intervention**, allowing natural processes to continue, i.e. erosion of the chalk cliffs, lowering of the rock platform and a landward migration of the shoreline. During this epoch the current position of the railway may need to be re-located in order to maintain operability of this important link. This impact should not adversely affect the character of the frontage, maintaining the geological, biological and landscape assets. Sediment transport rates will remain reasonably low supplying little material to the Samphire Hoe frontage. This recommendation is deemed sustainable for the Shoreline Management Plan timescale.

Location reference: **Abbots Cliff**

Policy Unit reference: **4c05**

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	No assets are at risk	The current amenity and recreational facilities will be maintained
2025 – 2055	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	Some cliff top assets will be at risk due to erosion (includes 'Sound Mirror' and a burial mound)	Cliff top erosion will affect some amenity assets (Saxon Shore Way and North Downs Way)
2055 – 2105	Cliff erosion will continue, providing nominal feed (fines) to the system	The current railway line may become unusable at some point during this period and therefore alternative locations (landwards) may need to be sought.	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	Some cliff top assets will be at risk due to erosion (includes 'Sound Mirror' and a burial mound)	Cliff top erosion will affect some amenity assets (Saxon Shore Way and North Downs Way)

Location reference: **Folkestone Warren**

Policy Unit reference: 4c06

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A major coastal landslide complex, important for both its geological and ecological value, with a mainline railway line running across the lower part of the slope, which is prone to ground movements. The recommended policy is to maintain and improve the existing defences until such a time that the long term maintenance plan, for this route, has been established (linked to 4c05). If the present alignment were not to be maintained, it may be appropriate to allow defences to fail under a long term policy of No Active Intervention. This approach seeks to however, maintain the operation of the railway in line with the long term plan in the Abbot's Cliff frontage. It is anticipated that toe defence maintenance and slope stabilisation works would cease, ultimately returning the landslide system to a more natural state, thus improving its nature conservation quality. Given the uncertainty over when exactly the present railway line will breach and how long the defence structures will take to fail, it is difficult to predict when landsliding will revert to its natural rate. This, however, is unlikely to occur before the end of the 100-year period. Once landsliding on the lower slopes resumes, there will be a gradual increase in the likelihood of failure of the back-scarp. The village of Capel-le-Ferne lies close to the cliff edge and properties will increasingly become at risk, as will heritage sites including several gun battery positions. Landsliding within the Warren will stop its use as an amenity area. It may be possible / necessary to consider drainage measures to reduce the rate of slope retreat once toe defences have failed, although any recommendation would need to demonstrate environmental acceptability.

Preferred policies to implement Plan:

From present day: The present day policy for Folkestone Warren is to **hold the line** and continue protecting the assets, nominally infrastructure, through maintaining the existing seawall, rock revetment and groynes. This arrests erosion at the cliff toe but does not stop erosion at the cliff top, although the rate is reduced. The presence of these defences adversely affects the environmental and landscape quality of the cliffs and interrupts sediment feed entering the system.

Medium-term: The medium term policy for Folkestone Warren is to continue to **hold the line**, for as long as technically possible, as rates of cliff top erosion and slippage frequency are likely to increase during this epoch, due to through flow, influencing the operability of the railway line.

Long-term: The operability of the railway line is likely to determine the long-term plan for Folkestone Warren. If the present position can be maintained (see Abbot's Cliff Policy Unit, 4c05) then **hold the line** will continue to be implemented. If however, this becomes technically and/or economically unviable, defences will be allowed to fail and landsliding will revert to its natural rate. In this case a policy of **no active intervention**, in the long term, is regarded as the most sustainable; as the cost of holding the cliff toe and shoreline in its present position will become increasingly difficult both economically and technically, it would also impinge on the coastal landscape. However, the strategic importance of the Dover-Folkestone rail link is recognised and a change to allow its failure would require full consideration of alternative links. In adopting

no active intervention the character of this frontage will change, from one driven by economics and infrastructure to one that promotes environmental and landscape value. Re-activation of the cliffs will provide an excellent, large-scale example of this geomorphological process. It will also create new exposures (to potentially include the junction between Glauconitic Marl and Lower Chalk) as well as releasing sediment feed, initially to the foreshore. This will be predominantly fines, but as transportation rates along this frontage are low, the impact of this on evolution downdrift is nominal. The reactivation of landsliding activity will result in the initiation of retreat of the cliff top edge, and the loss of properties in Capel-le-Ferne. It may be possible to consider drainage measures to reduce the rate of slope retreat once toe defences have failed, although any recommendation would need to demonstrate environmental acceptability.

Location reference:	Folkestone Warren
Policy Unit reference:	4c06

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities		Property, Built Assets & Land Use		Landscape		Nature Conservation		Historic Environment		Amenity & Recreational Use	
2025	Continue with current practises		No built assets are to risk during this period		The current landscape is maintained		The current habitats are maintained		No assets are at risk		The current amenity and recreational facilities will be maintained	
2025 – 2055	Increase engineering and management practises		No built assets are to risk during this period		Increased engineering has an adverse effect on the coastal landscape		Increased engineering has an adverse effect on habitat development and diversity		No assets are at risk		The current amenity and recreational facilities will be maintained	
2055 – 2105	NAI	Hold	NAI	Hold	NAI	Hold	NAI	Hold	NAI	Hold	NAI	Hold
	Engineering allowed to fail and management practises cease	Increase engineering and management practises	Current railway line lost and potentially a number of commercial and residential properties	Continued protection of railway and properties	Land is lost but a natural coastal landscape is reactivated	Engineering continues to have an adverse effect on the landscape	Erosion of the cliffs will reactivate biological and geological assets	Engineering has an adverse effect on habitat development and diversity	Cliff top assets will become at risk	Heritage assets protected	Some of the current amenity and recreational assets will be affected	Amenity & recreational assets maintained for as long as technically viable

Location reference: *Copt Point*

Policy Unit reference: *4c07*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Undeveloped, eroding cliffs, designated for their nature conservation and landscape value. The long term policy for this frontage is to maintain the environmental and geological value of the cliffs, by allowing erosion, which will result in the partial loss of cliff top recreational amenities along with the scheduled Roman Villa. The seashore is of nature conservation importance for its marine life. Residential developments are set back from the cliff top and are not significantly at risk under this plan.

Preferred policies to implement Plan:

From present day: The present day policy for Copt Point is to continue letting the Greensand cliffs erode under a **no active intervention** scenario. The only significant assets at risk on this frontage are the Roman Villa Scheduled Ancient Monument and the mini golf course. The Roman Villa is an important heritage feature, but it would be technically difficult to prevent erosion of the cliffs, and not environmentally acceptable. There is no economic justification for defending this section of the coastline, providing cliff top development remains restricted. This approach has no adverse environmental affects, sustaining the Folkestone developments whilst retaining a dynamically functioning shoreline.

Medium-term: In response to sea level rise and a lack of defences it is anticipated that cliff erosion will increase slightly during this period under a policy of **no active intervention**. Inputs from increased cliff erosion will provide foreshore cover and cliff toe protection before being fed into the system.

Long-term: The long-term policy is to continue with **no active intervention**; allowing the Greensand cliffs to erode, the rock platform to lower and the shoreline to retreat. It is undesirable to defend the coastline here because of the geological and biological importance of the cliffs and the landscape value of the frontage, which would be adversely affected if a defence structure were to be constructed. Some cliff top land / amenities will be lost, during the latter stages of the Shoreline Management Plan, due to increased rates of cliff erosion, in response to sea level rise. The general character of this frontage will not alter significantly and with transportation rates along this frontage being low, impacts on evolution downdrift are minimal.

Location reference: *Copt Point*

Policy Unit reference: *4c07*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	Roman Villa SAM will be progressively lost	The current amenity and recreational facilities will be maintained
2025 – 2055	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	Roman Villa SAM will be progressively lost	The current amenity and recreational facilities will be maintained
2055 – 2105	Cliff erosion will continue, providing nominal feed (fines) to the system	Cliff top assets may start to become vulnerable due to erosion but no properties will be lost	Land is lost but the coastal landscape is maintained	The continued erosion of the cliffs maintains the biological and geological assets	Roman Villa SAM will be progressively lost	Cliff top erosion will result in some loss of the mini golf course

Location reference: *Folkestone and Sandgate*

Policy Unit reference: *4c08*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Densely developed urban area, with buildings, infrastructure and amenity assets extending to the edge of a coastal slope and cliffs. The long term plan is to protect the frontage of this regionally important town i.e. the residential and commercial seafront properties and amenity areas such as the Lower Leas Coastal Park and Coronation Parade. The plan recognises that the harbour will be present throughout the next 100 years. Ongoing sea level rise is likely to result in a significant narrowing of intertidal areas, which has the potential to impact upon the tourism economy of the town, as beaches along this frontage are an important asset

Preferred policies to implement Plan:

From present day: The present day policy for Folkestone to Sandgate is to **hold the line** and protect substantial assets at this regionally important town and frontage by maintaining the existing seawall, harbour arms and groynes as well as managing the shingle beach along the western and central section of the frontage and the sandy beach east of the harbour arms. It is recognised that the presence of the harbour arm affects alongshore coastal processes, evident in the quantity of shingle built up on the updrift side of the harbour arms; however sand continues to move onto the Coronation Parade frontage. Holding the line and sustaining the harbour arms ensures that the commercial fishing industry and the amenity and recreational assets will continue to flourish. Defending the shoreline prevents erosion of the backing cliffs and the subsequent sediment supply.

Medium-term: The medium term policy for Folkestone is to continue defending the frontage, i.e. **hold the line**, by maintaining and upgrading the existing defences. As a consequence of sea level rise and subsequent inter-tidal squeeze, sand/shingle volumes would have to increase if an amenity beach and a suitable standard of defence is to be retained.

Long-term: The significant built assets along this frontage and within the confines of the harbour arms dictate that the long-term policy is to **hold the line**. To accomplish this and to keep pace with sea level rise, defences will need to be upgraded. The intertidal area will narrow and little if any beach building material will naturally be entering the system at this point in time, due to centuries of coastal defence works and a contemporary lack of beach building material. Thus retaining a beach in front of the substantial defence structures will become increasing difficult. This problem will be exacerbated with the shoreline being held seaward of its natural alignment. If a beach is not maintained, the character of this frontage will change from one that offers foreshore amenities to one that is purely defensive. The situation will be exacerbated as sourcing suitable recharge material may be increasingly expensive, due to shingle being a finite resource. Over the time scale of the Shoreline Management Plan this recommendation is deemed sustainable.

Location reference: *Folkestone to Sandgate*

Policy Unit reference: *4c08*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All properties and built assets are protected	Current landscape value sustained	Current marine and terrestrial habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained
2025 – 2055	Continue with current practises	All properties and built assets are protected	Current landscape value sustained	Current marine and terrestrial habitats maintained	Heritage assets will be maintained	Some recreational facilities will be lost due to a denuding beach & increased engineering. Beach narrowing mitigated against with re-nourishment.
2055 – 2105	Increase engineering and management practises to counter effects of sea level rise	All properties and built assets are protected	Increased engineering will have an adverse effect on the landscape and townscape value	Terrestrial habitats maintained, marine habitats affected	Some heritage assets may need to be relocated and/or recorded due to possible construction impacts	No loss of community or recreational facilities landward of the defences. Beach narrowing mitigated against with re-nourishment, although this may be offset by predicted sea level rise.

Location reference: **Sandgate to Hythe**

Policy Unit reference: 4c09

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Low lying area including the well developed town of Hythe, which is popular with tourists, and an open area to the east, which is of significant amenity value and includes a sports ground and golf course amongst other facilities. The long term plan is to continue protecting these assets and developments from flooding and erosion, much of which is below the level of the fronting beach. The low lying area forms the eastern part of the Dungeness flood risk area, which is a vast low lying area that stretches through to Pett Levels in the west. It is important to recognise that continuing to protect the area from flooding, can only seek to reduce the risk of flooding and not prevent it, as storms exceeding the protection level of the defences could occur, at any given point in the future.

Preferred policies to implement Plan:

From present day: The present day policy for Sandgate to Hythe is to **hold the line** by continuing to protect this section of the coastline through maintaining the existing seawall, groynes and shingle beach. An important potential consequence of this policy will be the narrowing of the intertidal area, as sea level rises, which could significantly impact upon the amenity value of the frontage, and future management schemes will need to address this issue

Medium-term: The medium term policy for Sandgate to Hythe is to continue to protect the significant assets by **holding the line**. This will require continued maintenance of structures and beach management. The recently completed scheme on this frontage provides a suitable standard of protection during this period.

Long-term: To prevent large scale flooding of the significant assets, the long-term plan for Sandgate to Hythe is to continue to **hold the line**, by maintaining and upgrading existing defences. This will fix the shoreline in its current position, albeit seaward of its natural alignment, resulting in a narrowing foreshore and a depleting beach, due to sea level rise and a lack of contemporary material entering the system. A reducing beach will exert additional stress on the defences, and it is likely that the character of the frontage will change from one with amenity value to one that is purely defensive. This recommendation is deemed sustainable, over the time frame of the Shoreline Management Plan, as rates of sediment feed to and along this frontage are low.

Location reference: **Sandgate To Hythe**

Policy Unit reference: 4c09

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practices	All properties and built assets are protected, both locally and within Dungeness peninsula flood risk area	Current landscape and land use value sustained	Current marine and terrestrial habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained
2025 – 2055	Continue with current practices	All properties and built assets are protected, both locally and within Dungeness peninsula flood risk area	Current landscape and land use value sustained	Current marine and terrestrial habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained
2055 – 2105	Increase engineering and management practises, with greater extend of hard defence structures	All properties and built assets are protected, both locally and within Dungeness peninsula flood risk area	Increased engineering will have an adverse effect on the landscape and townscape	Terrestrial habitats maintained, shoreline habitats adversely affected by the presence of defence structures	Some heritage assets may need to be relocated and/or recorded	No loss of community or recreational facilities landward of the defences. Beach narrowing could be mitigated against with re-nourishment however this option will only be viable for a set duration and will require careful consideration.

Location reference: *Hythe Ranges*

Policy Unit reference: *4c10*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A largely open area of shingle ridges, used by the Ministry of Defence as a firing range (part of the Army Training Estates South East complex). The plan in the short and medium term, due to demonstrable military training requirements over that timescale, will be to maintain and improve the existing defences. However, in the long term, Managed Realignment is recommended. This will allow existing defences to fail and natural roll-back of the coastline to commence. As such, shingle would feed frontages located to the east, and significantly improve the nature conservation value of the coastline. It is anticipated that shoreline retreat may be of the order of 1 to 2 m per year following defence failure resulting in the gradual loss of areas currently used by the MOD. This frontage forms part of the Dungeness flood risk area and, as such, the potential for flood inundation through this area needs to be managed. The exact position of any set-back flood defence structure is not set (this is addressed in the Folkestone to Cliff End Strategy Study), although maximum conservation and process benefits could be realised by adopting a line seaward of the main A259 road.

Preferred policies to implement Plan:

From present day: The present day policy for Hythe Ranges is to continue to **hold the line** and protect the ranges by maintaining, and possibly improving, the rock revetment and groynes. During this epoch the current assets will be maintained, but in the long term a realignment of the shoreline may be possible given restrictions on development in the flood risk zone. Coastal defences to the west of this unit have interrupted the supply of sediment which has led to the diminishing of the natural storm beach.

Medium-term: The medium term policy is to continue to provide protection to the MOD training infrastructure and assets backing the frontage, through a continuation of the **hold the line** policy. Maintenance of the improved rock revetment structure will achieve this, however it is likely that rising sea levels will result in some narrowing of the intertidal area.

Long-term: The long term policy promotes a change of approach, switching from hold to **managed realignment**, at some point during this epoch. Under managed realignment the existing defence structures would deteriorate, allowing retreat of the shingle barrier, across the backing hinterland, in response to ongoing sea level rise and a lack of contemporary beach building material entering the system. It is anticipated that any realignment would be monitored and managed with a secondary sea defence being installed at a retreated position. During this period measures will need to be put in place to determine how to manage future erosion and flooding, both in terms of risk management and the appropriate relocation of military assets.

Location reference: *Hythe Ranges*

Policy Unit reference: *4c10*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All assets are protected	Current Romney Marsh landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be maintained	No amenity use of MOD frontage. Inland areas protected
2025 – 2055	Continue with current practises	All assets are protected	Current Romney Marsh landscape maintained	Protection of terrestrial habitats. Some narrowing of intertidal area.	Heritage assets will be maintained	No amenity use of MOD frontage. Inland areas protected
2055 – 2105	Change from current management and defence practises. Construct a secondary defence possibly on the seaward side of the A259	Loss of Ministry of Defence training facilities. Unexploded ordnance issue	Maintenance / construction of secondary defence will potentially affect the landscape but the ranges area should improve.	Reinstatement of 'naturally functioning' shoreline, and improvements to terrestrial shingle habitats with removal of military infrastructure.	2 Martello towers may be lost (dependant upon secondary defence alignment) also the sites of former towers.	Removal of MOD facilities would open this frontage to amenity users.

Location reference:	<i>Dymchurch Redoubt to Romney Sands</i>
Policy Unit reference:	<i>4c11</i>

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This is a low lying area with developments backing much of the coastline, together with an area of dunes (Romney Warren) of nature conservation importance. The long term plan is to minimise flood risk and protect the development at Dymchurch, St Mary's Bay and Littlestone-on-Sea, as well as the backing hinterland and its assets, all of which are in the Dungeness flood risk area. Land here is very low and (flood) inundation could potentially affect a huge area. Continuing to provide flood protection will not only benefit the many properties at risk, but also internationally important wildlife sites, as well as amenity features (such as the light railway), heritage features (such as Dymchurch Redoubt) and large areas of agricultural land. A major impact of this policy will be the narrowing of the sandy intertidal area. This will be highly susceptible to 'squeeze' under a scenario of sea level rise, thereby resulting in the possibility of little or no beach remaining in 100 years time.

Preferred policies to implement Plan:

From present day: The present day policy for Dymchurch Redoubt to Romney Sands is to continue to **hold the line** and protect the substantial assets on the coast and backing hinterland by maintaining and where necessary upgrading, the existing seawall, revetments, groynes and beach.

Medium-term: The medium term policy for Dymchurch Redoubt to Romney Sands sees a continuation of **hold the line**. With the immediate updrift frontages (to the south) being allowed to function freely, some beach building material will enter the system. However, shingle nourishment will be required to maintain a beach on this frontage, particularly at the north end where the intertidal area is already very narrow.

Long-term: The long-term plan for Dymchurch Redoubt to Romney Sands is to continue protecting the shoreline and backing hinterland assets by **holding the line**. Without significant beach nourishment and control structures, it is unlikely to be possible to retain a beach due to sea level rise. Thus the character of this frontage will progressively change from one that provides amenities, i.e. sand and shingle beach, to one that becomes increasingly defended. As a consequence certain amenities may be lost and/or threatened (e.g. Varne Boat Club and lifeboat station), the integrity of heritage assets on the coast will come under attack and infrastructure such as outfalls and pumping stations may require additional maintenance in order to remain operable.

Location reference: *Dymchurch Redoubt to Romney Sands*

Policy Unit reference: *4c11*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with the current management practises	All assets are protected	Current Romney Marsh landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained
2025 – 2055	Larger hard defence structures required to maintain adequate defence standard under rising sea levels	All assets are protected	Increased engineering will have an adverse effect on the landscape	Current terrestrial habitat maintained but the shingle beach and sand dune complex will denude with time	Terrestrial assets protected. Any foreshore heritage assets will be lost due to intertidal narrowing	Current amenity and recreational facilities maintained
2055 – 2105	Larger hard defence structures required to maintain adequate defence standard under rising sea levels	All assets are protected, but lifeboat may be affected	Increased engineering will have an adverse effect on the landscape	Current terrestrial habitat maintained but the shingle beach and sand dune complex will denude with time	Terrestrial assets protected. Any foreshore heritage assets will be lost due to intertidal narrowing	Some recreational facilities will be lost due to a denuding beach & increased engineering. Beach narrowing could be mitigated against with re-nourishment however this option will only be viable for a set duration and will require careful consideration.

Location reference:	<i>Romney Sands to Dungeness Power Station</i>
Policy Unit reference:	<i>4c12</i>

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Linear developments are set back from an accreting coastline of significant nature conservation importance. The long term plan for this frontage is to continue allowing the shingle shoreline to naturally accrete. The aim of this plan is to protect the built assets of Greatstone-on-Sea and Lydd-on-Sea, and reduce the potential flooding risk throughout Dungeness. The light railway, fishing facilities and other assets will also be protected, and the nature conservation value of the shingle habitat and active geomorphology will be maintained and enhanced as the coastline accretes.

Preferred policies to implement Plan:

From present day: The present day policy for Romney Sands to Dungeness is to **hold the line** and protect the assets by allowing the coastline (shingle beach and sandy beach with sand dunes at Greatstone-on-Sea) to continue to naturally accrete. 'The line' at this location is considered to refer to the seaward edge of the linear developments backing this frontage, rather than the mobile beach position, which forms just one part of the wide shingle area defending the built assets. For the benefits of this policy to be fully realised, shingle recycling from the borrow pit (to maintain the power station frontage and Lydd Ranges) will need to reduce during this epoch. No new defences are needed and this approach has substantial environmental benefits as well as allowing the coast to function freely.

Medium-term: The medium term policy for Romney Sands to Dungeness is to **hold the line**. In response to sea level rise it is anticipated that the naturally accreting foreshore will continue, with shingle ridges being built higher than they currently are. As no engineering structures are in place along this section of the coastline, comprehensive monitoring will be required to ensure that the hinterland assets remain sufficiently protected from the risk of flooding.

Long-term: The long-term policy for Romney Sands to Dungeness is to continue to **hold the line** and protect the substantial number of built assets along the coast and on the backing hinterland. This will primarily be achieved by monitoring the natural accretion of the shingle ridges. During this epoch the shoreline position may migrate slightly north and eastwards and as a consequence some amenities will need relocating but generally the character of this frontage will remain very similar to the existing one. As rates of sediment feed and transportation, along this frontage are high, potential impacts on evolution downdrift are significant, thus allowing and monitoring natural accretion is recommended and deemed sustainable, for the Shoreline Management Plan.

Location reference: *Romney Sands to Dungeness Power Station*

Policy Unit reference: *4c12*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Ongoing shingle accretion along most of this frontage provides a natural defence. Continue with monitoring	All property, built assets and land uses are protected	Current Romney Marsh landscape maintained	Current terrestrial and marine habitats maintained	Terrestrial heritage assets will be maintained	Current amenity and recreational facilities maintained
2025 – 2055	Ongoing shingle accretion along most of this frontage provides a natural defence. Continue with monitoring	All property, built assets and land uses are protected	Current Romney Marsh landscape maintained	Current terrestrial and marine habitats maintained	Terrestrial heritage assets will be maintained	Current amenity and recreational facilities maintained
2055 – 2105	Ongoing shingle accretion along most of this frontage provides a natural defence. Continue with monitoring.	All property, built assets and land uses are protected	Current Romney Marsh landscape maintained	Current terrestrial and marine habitats maintained	Terrestrial heritage assets will be maintained	Current amenity and recreational facilities maintained

Location reference: *Dungeness Power Station*

Policy Unit reference: *4c13*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

The two nuclear power stations lie parallel to the shoreline, protected by a heavily managed shingle bund. The plan in the long term is to protect this major infrastructure feature and avoid any potential contamination risks. Were the stations to cease operation and be decommissioned then it may be possible to realign this frontage, however there is presently no certainty that this will happen, (and even if it did some protection would still be required for health and safety reasons. The preferred plan also reduces flooding risk to adjacent low lying areas.

Preferred policies to implement Plan:

From present day: The present day policy for Dungeness Power Station is to **hold the line**. This will be achieved by continuing to maintain the natural storm beach, with a re-profiled shingle bund and shingle recycling, although alternative sources may need to be sought, from the current location, at some point during this epoch, as extraction from the borrow pit may be having adverse environmental impacts. With a release of sediment expected from realignment of Lydd Ranges, the volume that gets transported alongshore will complement recycled material and feed the power station frontage.

Medium-term: The medium term policy for Dungeness Power Station is to **hold the line**. In response to sea level rise it is anticipated that the shingle bund will require additional maintenance and potentially upgrading, as the ness becomes more vulnerable to wave attack. Additional monitoring may become a necessity at sometime during this epoch to establish whether material entering the system from alongshore is sufficient to provide the standard of protection required as well as limiting the risk of flood inundation.

Long-term: The long term policy is to continue to **hold the line** and protect the Power Station frontage and hinterland assets. Achieving this will become increasingly problematic, as naturally the ness wants to migrate to changes in forcing factors i.e. sea level rise but as the southern shore is 'fixed' this is not possible. Retaining the shingle bund will therefore become increasingly difficult and a more 'durable' option may need to be considered at some point during this epoch. Rates of sediment feed along this frontage are high, so retaining a shingle beach will become increasingly difficult under rising sea levels.

Location reference: *Dungeness Power Station*

Policy Unit reference: *4c13*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current management practises, provided shingle recycling remains acceptable	The power stations and associated infrastructure are maintained and protected.	Current landscape and land use maintained	Shingle recycling has an adverse affect on the cSAC	Heritage assets will be maintained	Current amenity use of the frontage maintained
2025 – 2055	Continue with current management practises, provided shingle recycling remains acceptable	The power stations and associated infrastructure are maintained and protected.	Current landscape and land use maintained	Shingle recycling has an adverse affect on the cSAC	Heritage assets will be maintained	Current amenity use of the frontage maintained
2055 – 2105	Potentially increase engineering and management practises	The power stations and associated infrastructure are maintained and protected.	Increased engineering has an adverse effect on the landscape	The increased engineering and management practises would adversely affect nature conservation	Any foreshore heritage features could be at risk from new works.	Additional recreational facilities will be lost due to a denuding beach and/or the implementation of a more substantial defence

Location reference: **Lydd Ranges**

Policy Unit reference: 4c14

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This frontage comprises a largely open area of shingle ridges, recognised internationally for their nature conservation importance and used by the Ministry of Defence as a firing range (part of the Army Training Estates South East complex). The Coastguard Cottages at Jury's Gap are included in the western end of this shingle dominated frontage. The plan for this frontage is to allow the shoreline to retreat naturally, improving the conservation status by creating a natural shingle beach and associated habitats. Given the extent of shingle available to form a beach, this is intended to represent a low maintenance coastline as sediment will be fed to, and beyond, the power station in the east.

The SMP recognises that, throughout the frontage, training facilities are set slightly back from the shoreline. As such, realignment should be possible in the short term whilst operation of the ranges is maintained. It is understood that there is a military training requirement for use of these ranges in the short and medium term; however military requirements beyond this are not currently known. The Folkestone to Cliff End Strategy Study considers, in detail, issues associated with the justification for protection of the facility and associated flood defence of the wider Dungeness Peninsula. The strategy will therefore define the exact standard and alignment of defence for this frontage.

Without defences, there would be a significant flooding threat to the backing hinterland, so flood embankments to limit flood propagation would be required. The SMP has not defined where these should be therefore the position of the defences will dictate the extent to which the operation of the ranges may be impeded. However, it is likely that limited retreat can be undertaken without significantly impacting upon MoD training infrastructure. Existing structures, such as the Green Wall, may provide a suitable basis for part of any new structure.

Preferred policies to implement Plan:

From present day: The present day policy for Lydd Ranges is to adopt **managed realignment** at some point during this epoch. Prior to implementation a suitable secondary defence would need constructing to eliminate the risk of flood propagation to the hinterland. The position of this structure is outside the scope of the SMP. Under managed realignment, shingle recycling and beach re-profiling would cease, allowing the shoreline to function more dynamically. The western extremity of this frontage (Jury's Gap and to the Midrips) is likely to experience the greatest initial retreat of the shoreline as shingle from this area feeds downdrift frontages, although the position of this will depend on how the realignment ties into the adjacent defences updrift (Jury's Gap to The Sutton's: 4c15). Annual retreat rates along the frontage are anticipated to be in the order of 1m to 1.5m / per annum, although a surge of erosion may be experienced initially with the cessation of management practises. Eroded material will be transported alongshore to feed beaches in this frontage and those downdrift,

Location reference:	Lydd Ranges
Policy Unit reference:	4c14
	creating an active barrier and swash formation in the process.
Medium-term:	<p>The medium term policy for Lydd Ranges is to continue with managed realignment. In response to continued / accelerated sea level rise it is anticipated the shingle barrier will roll back, cannibalising the backing shingle store (eating into areas of historic ridge formation), and transporting it in an easterly direction as it does so. In addition to this, any sections of low lying alluvium seaward of the flood defence will be inundated, due to overwashing of the beach under storm conditions. It is possible that inlets could be formed if significant breaches occur that could not be repaired by longshore drift material. Environmental transitions will be prominent during this epoch as brackish and intertidal habitats replace some of the freshwater interests. This may require specific management to maximise the environmental benefits and limit any potential habitat impacts.</p>
Long-term:	<p>The long-term plan for Lydd Ranges is to continue with managed realignment; allowing the shoreline to function dynamically, possibly at the cost of further areas of military use being inundated. This will give way to improved inter-tidal habitats and potential inlet formation. The extent of hinterland inundation will depend on 1) the position of the secondary defence, i.e. the more landwards it is the less influence it will exert on coastal processes, and 2) the degree of sea level rise. It is envisaged that sediment will continue to be fed to frontages downdrift (east). Managed realignment, at Lydd Ranges, is considered the sustainable long term approach.</p>

Location reference: **Lydd Ranges**

Policy Unit reference: **4c14**

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Change from the current management practises to the construction of a set back flood defence	Some of the property and assets backing this frontage may be lost. The extent depends upon location of a secondary defence.	The current landscape will probably change from an extensively managed environment to an increasingly natural landscape.	Shingle beach and strandline vegetation will be improved. Some freshwater areas give way to saline habitats. Impacts of set-back defence construction.	The majority of the heritage assets (including the Green Wall) will be at risk and will therefore need recording and / or relocating. Defence construction may affect heritage assets.	Continued military use, therefore limited amenity usage of this frontage due to safety issues.
2025 – 2055	Maintenance of a set back flood defence	Some of the property and assets associated with the ranges may be lost. The extent depends upon location of a secondary defence.	The current landscape will probably change from an extensively managed environment to an increasingly natural landscape.	Shingle beach and strandline vegetation will be improved. Some freshwater areas give way to saline habitats. Impacts of set-back defence construction.	The majority of the heritage assets (including the Green Wall) will be at risk and will therefore need recording and / or relocating. Defence construction may affect heritage assets.	Continued military use, therefore limited amenity usage of this frontage due to safety issues.
2055 – 2105	Maintenance of a set back flood defence, and possible construction of defences at a position further inland.	Potential further loss of property and assets associated with the ranges. The extent depends upon location of a secondary defence.	The current landscape will probably change from an extensively managed environment to an increasingly natural landscape.	Shingle beach and strandline vegetation will be improved. Some freshwater areas give way to saline habitats. Impacts of set-back defence construction.	The majority of the heritage assets (including the Green Wall) will be at risk and will therefore need recording and / or relocating. Defence construction may affect heritage assets.	May become accessible for amenity usage, if MoD were to no longer use this site. However, it is possible that military use will continue.

Location reference: *Jury's Gap to The Suttons*

Policy Unit reference: 4c15

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Low lying frontage with a road and properties immediately behind the defences, which back onto the vast Dungeness flood risk area. The plan here is to continue providing ongoing protection to the backing assets and developments throughout the flood risk area. These include caravan parks, a sewage treatment works (close to the frontage), many properties and vast areas of agricultural land in the wider flood risk area, developments including Camber, Lydd and others that extend beyond Walland Marsh. The protected area also includes large areas of internationally important shingle and freshwater habitats, which will remain in-situ under the long term plan. The plan involves removal of the existing groyne, and cessation of shingle recycling operations, with the construction of a hard defence, which will improve movement of sediments along the frontage in the short term. There will however be a narrowing of the beach in the long term due to sea level rise. In light of this it is recognised that managed realignment could offer some benefits, and this is being investigated further in the Folkestone to Cliff End Strategy Study. However, the plan for this frontage remains one of providing protection to the many low lying assets within the backing flood risk area, along the current defence alignment.

Preferred policies to implement Plan:

From present day: The present day policy for Jury's Gap to The Suttons is to continue to **hold the line** and protect the substantial assets on the coast and backing hinterland. To achieve this and reduce coastal process and environmental impacts, the existing seawall, groyne field and beach recycling scheme will be replaced with a more substantial hard defence structure, to provide the necessary standard of flood protection. Although Jury's Gap to The Suttons is sparsely populated, holding the line here will defend the low lying backing hinterland, including the developments of Camber and Lydd, large areas of farm land, sustain important transportation links to Camber, Rye and Lydd as well as maintain the tourist/recreational amenities and heritage assets.

Medium-term: The medium term policy for Jury's Gap to The Suttons is to **hold the line**. With sea level rise it is anticipated that the hard defences will require some maintenance, as the beach that fronts this structure will become depleted. Although this will threaten the integrity of foreshore amenities, all backing assets will be maintained.

Long-term: To prevent large scale flooding of the significant assets on the coast and the backing hinterland, the long-term plan for Jury's Gap to The Suttons is **hold the line**. This will be achieved by maintaining and upgrading existing defences to fix the shoreline in its current position, albeit seaward of its natural alignment. Sea level rise and a lack of contemporary material entering the system will result in continued narrowing of foreshore/inter-tidal area as well as a depleting beach, which will exert additional stress on the rock revetment. The character of the frontage will change from one that has an amenity beach to one that is purely defensive, as little or no beach is maintained. This recommendation is deemed sustainable over the time frame of the Shoreline Management Plan.

Location reference: *Jury's Gap to The Suttons*

Policy Unit reference: *4c15*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Hard linear defences required to provide an appropriate flood defence.	All properties and built assets are maintained and protected	Current landscape and land use maintained	Current terrestrial and marine habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained
2025 – 2055	Maintenance of hard defence structures.	All properties and built assets are maintained and protected	Increased engineering has an adverse effect on the landscape but the land use activities are maintained	Current terrestrial habitats will be maintained but the marine habitats will start to decline / be at risk.	Heritage assets will be maintained	Recreational value will be reduced due to denuding beach
2055 – 2105	Maintenance and improvement of hard defence structures.	All properties and built assets are maintained and protected	Increased engineering has an adverse effect on the landscape but the land use activities are maintained	Current terrestrial habitats will be maintained but the marine habitats will be at risk.	Heritage assets will be maintained	Beach narrowing could be mitigated against with re-nourishment however this option will only be viable for a set duration and will require careful consideration.

Location reference: **Camber Sands**

Policy Unit reference: 4c16

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A seaside village with extensive tourism developments (daily visitor rates can be as high as 30,000 in the summer) and a golf course, fronted by sand dunes of national conservation importance. The long term policy here is to protect the village and other assets within the backing Dungeness flood risk area. Presently this frontage is accreting and is anticipated to continue doing so throughout the remainder of this century. It is believed that this process is reliant on the harbour arms at Rye remaining in place, thus sheltering Camber Sands and creating a local sediment drift reversal. As such, it is anticipated that this policy will not require hard defences as the dunes will build. However, were erosion of the dunes to occur it would be appropriate for works to be undertaken to prevent flooding of the backing low lying land.

Preferred policies to implement Plan:

From present day: The present day policy for Camber Sands is to **hold the line** and protect the substantial assets (Camber being an important tourist area); this will be achieved by managing the accreting Camber Sand Dune system (currently achieved by using sand trap fencing and moving 'loose' sand from pathways and vegetation). The sheltering presence of the Rye Harbour Arm renders this section of the coastline stable and therefore no defence structures are foreseen as being required for the short to medium term at least. This policy has no adverse environmental or coastal process affects, sustaining the SSSI and SNCI designation, nor is it detrimental to the built assets, however (mis)use of the dunes by tourists may put pressure on their stability and thus continued and stringent dune management is required.

Medium-term: With ongoing sea level rise it is anticipated that **holding the line**, could potentially come under some degree of pressure towards the latter stages of this epoch. Although the harbour arm affords some degree of protection to this frontage, and creates the drift reversal that supplies sediment to the beach. It is likely that, with appropriate management and intervals of limited access to the public, the dunes will remain healthy during this period.

Long-term: The long-term plan for Camber Sands is to continue protecting the substantial built assets by holding the line. Ideally this will be achieved via dune management; preferably in the form of marram grass planting however, under extreme cases large-scale topping, re-profiling and fencing may be required. As the latter would significantly impact on the nature conservation interest of the dunes it would require careful consideration. Ongoing sea level rise may prevent the accretion of these dunes during this period. Should the integrity of the dunes be threatened the character of this frontage will change, from one with 'soft' defences to one with hard defences, due to the numerous assets contained within the low-lying hinterland. This recommendation is deemed to be sustainable as rates of sediment feed and transportation along this frontage are low and therefore impacts on evolution elsewhere are nominal.

Location reference: **Camber Sands**

Policy Unit reference: **4c16**

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current management practises (i.e. dune management)	All properties, built assets and other uses are maintained and protected	Current landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained (including backing golf course, and caravan parks)
2025 – 2055	Continue with current management practises (i.e. dune management)	All properties, built assets and other uses are maintained and protected	Current landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be maintained	Current amenity and recreational facilities maintained (including backing golf course, and caravan parks)
2055 – 2105	May require increased management practises if dune erosion occurs.	All properties, built assets and other uses are maintained and protected	Any increase in the management practises could, if not implemented sympathetically, have an adverse effect on the landscape.	The sand dune system may start to become vulnerable under storm conditions. Similarly there could be potential damage to the nature conservation interest through large scale topping, re-profiling and replanting.	Heritage assets will be maintained	Some dune/beach facilities may be lost if hard defences were to be implemented

Location reference:	River Rother (Mouth of the River Rother to the sluices around Rye)
Policy Unit reference:	<i>4c17</i>

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan: *This unit comprises the mouth of the River Rother upstream to the weirs around Rye. The long term plan is to provide continued flood protection to the adjacent low-lying areas and ensure the ongoing operability of Rye Harbour (an important base for commercial fishing, tourism and recreation) through the maintenance of a navigable channel. This is likely to be achieved through the maintenance of existing river defences. This approach should not preclude the development of local realignment opportunities on the river, if environmental benefits can be realised.*

In the long term, the policy for the adjacent, River Rother to Cliff End frontage may include the managed removal of part of the terminal groyne at the end of the western harbour arm. This would, however, only be undertaken if navigation of the River was not affected and the flow of shingle onto Camber Sands were prevented. Stringent management would therefore be required.

Preferred policies to implement Plan:

From present day: The present day policy for the River Rother is to **hold the line**; this will be achieved by maintaining the existing training walls and river bank defences to ensure channel navigation is maintained (a legal requirement) and that flood risk to the substantial hinterland assets is reduced. The River Rother links into the flood plain of Walland Marsh thus flood propagation could be widespread if defences were not maintained. Fixing the mouth of the river in its present position would maintain the substantial socio-economic, heritage assets of the area. Rye Harbour is an important tourist feature and offers numerous recreational amenities including its heritage assets.

Medium-term: The medium term policy for the River Rother sees a continuation of **hold the line**. In response to sea level rise, and to sustain the flood protection, it is anticipated that at some point during this epoch, the river embankments may need to be upgraded.

Long-term: The long-term policy for the River Rother is to **hold the line**, to maintain the navigability of the river channel and reduce flood risks. This will be achieved by maintaining and upgrading the training walls and other defences. Depending on the policy selected updrift (4c18) there could be a partial removal of the terminal groyne in this epoch, which will not impede navigational access but may potentially involve dredging of the river channel. The character of this frontage may alter slightly with the implementation of greater flood defences, which could impinge on the aesthetics of the landscape; it will however sustain a substantial amount of assets, along with a wide range of amenities. This recommendation is deemed sustainable, over the SMP timescale.

Location reference: River Rother (Mouth of the River Rother to the weirs around Rye)
Policy Unit reference: 4c17

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current management practises	All properties and built assets are maintained and protected. Rye Harbour operation maintained.	Current landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be protected.	Current amenity and recreational facilities maintained
2025 – 2055	Continue with current management practises	All properties and built assets are maintained and protected. Rye Harbour operation maintained.	Current landscape maintained	Current terrestrial and marine habitats maintained	Heritage assets will be protected.	Current amenity and recreational facilities maintained
2055 – 2105	Maintain and upgrade the navigation and defence structures and potentially dredge the river channel.	All properties and built assets are maintained and protected. Rye Harbour operation maintained.	Current landscape maintained	Current marine habitats may be affected by any change to management activities	Heritage assets will be protected.	Some recreational facilities may be lost with increased engineering

Location reference:	River Rother to Cliff End
Policy Unit reference:	4c18

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A partially developed low lying area, of international nature conservation value, with Pett Levels in the west and shingle accumulations against Rye Harbour terminal groyne in the east. In the short to medium term the plan is to continue protecting the low lying assets, which include properties, roads, agricultural land, freshwater habitats and the Royal Military Canal. However, in the longer term it is proposed to realign the defences, to realise potential environmental, engineering and coastal process benefits. Under rising sea levels it is anticipated that it will become increasingly difficult to maintain a beach on this frontage (due to coastal squeeze and a general lack of natural sediment inputs), resulting in a need for very substantial hard defences if the current alignment were to be held in the long-term. Managed realignment would avoid the need for such defences, possibly creating cost savings and environmental enhancement. This approach is considered viable here (as opposed to many other low lying areas) as the flood area is, at least in part, backed by the raised topography of the historic cliff line of Wickham Cliff, Friars Cliff, etc behind Pett Levels. No specific realignment position has been defined under the SMP (as it is not within the remit of the SMP to do this), although greatest engineering and environmental benefits will be realised if the coast is allowed to retreat to the raised ground. This approach would involve managed loss of developments close to the current coast, however it is intended that developments around Rye Harbour would continue to be protected.

A possible variation of the plan includes managed removal of part of the terminal groyne (at the end of the western harbour arm), should the aforementioned realignment reduce the volumes of shingle at the harbour arm. This would, however, only be undertaken if navigation of the River Rother was not affected and the flow of shingle onto Camber Sands were prevented. Stringent management would therefore be required. Management would also maintain the international nature conservation importance of the surrounding area.

Preferred policies to implement Plan:

From present day: The present day policy for River Rother to Cliff End is to **hold the line**. The current defences and management practises are being upgraded to achieve this; they include a set-back flood defence between the harbour arm and Winchelsea Beach, and defences on the coast between Winchelsea Beach and Cliff End.

This difference in defence form is due to the eastern section being composed of accreting shingle, albeit artificially (against the Rother Terminal Groyne), which is greater in elevation and durability than the alluvium section to the west. Over the life of these defences (50 years plus) the beach between Winchelsea Beach and Cliff End will narrow due to sea level rise and a lack of natural sediment inputs, making defence maintenance increasingly difficult in the long term. However, ongoing improvements to the defences will continue to reduce the flooding risks to properties at Cliff End and Winchelsea Beach, together with important environmental areas and other assets such as the coastal road and the Royal Military Canal.

Location reference: River Rother to Cliff End

Policy Unit reference: 4c18

Medium-term: The medium term policy for Rye Harbour to Cliff End is to continue to protect the built and land-use assets by **holding the line**. In response to this, present environmental assets will be sustained in-situ. In response to ongoing sea level rise it is anticipated that the shingle beach, along the eastern part of this frontage, may roll back and sections may be breached during storm periods however flooding will be limited by the set-back defence. The low lying section to the west will become more vulnerable as retaining a beach here will become increasingly difficult, with sea level rise and a lack of contemporary sediment entering the system.

Long-term: In the long-term, if the socio-economic, environmental and technical benefits are confirmed, then it will be appropriate to implement a change of policy to **managed realignment**, by constructing new structures and re-routing coastal paths, at a set-back position and allow the existing defences to fail. The presence of raised topography behind the flood plain, and the likely increasing cost of maintaining the existing alignment, makes this appropriate. However, further detailed study would be required ahead of such a policy to ensure its viability.

No specific realignment position has been identified for the SMP however any set back would involve the loss of built assets, and could potentially include houses, tourist facilities, roads, agricultural land, part of the Royal Military Canal and freshwater habitat. However, realignment would create a coast that will not require continual increasing expenditure to maintain in the coming centuries, together with the creation of important brackish and saline habitats, as well as coastal process benefits i.e. active shingle barrier beach, making this the appropriate policy. The loss of the designated freshwater habitats at Pett Levels would normally require mitigation measures to be implemented, and this aspect will require more detailed appraisal if it is still required in the long term. If compensatory habitat creation were required, it is likely that areas on the Dungeness peninsula would be appropriate.

The section of the coast east of Winchelsea Beach comprises a series of relict shingle ridges that will be cannibalised (lost) as the shoreline realigns itself. Here the shingle store is of a sufficient size to maintain itself, being supplemented with downdrift feed. Despite ongoing sea level rise, no significant assets along this section would be at risk.

The managed removal of part of the terminal groyne structure on the western harbour arm may be considered as an appropriate part of the implementation of this policy, if further study indicates that it will be possible to remove the excess shingle from the up-drift frontage onto the shoreline east of Camber (The Suttons to Jury's Gap and Lydd Ranges) without either detrimental impact or prohibitive costs from the removal operation (as this would have to be

Location reference: River Rother to Cliff End

Policy Unit reference: 4c18

undertaken mechanically and transported most obviously by road if navigation of the River Rother is to be maintained). This approach would potentially reduce the amount of shingle held at the terminal groyne, allowing more material to move (either naturally or artificially) onto the southern shore of Dungeness. Potential impacts of shingle movement onto the sandy beach at Camber, as well as implications on recreational use, would need to be considered, as would the potential for changes in sediment drift patterns around Camber. So long as navigable access is required into the river (i.e. whilst Rye remains an operational harbour) it will not be realistic to consider unmanaged removal of the terminal groyne.

Location reference: River Rother to Cliff End

Policy Unit reference: 4c18

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current management practises.	All properties and built assets are maintained and protected	Current landscape and land use maintained	Terrestrial and marine habitats will be maintained	Heritage assets will be maintained	Current amenity and recreational facilities will be maintained
2025 – 2055	Continue with current management practises.	All properties and built assets are maintained and protected	Current landscape and land use maintained	Terrestrial and marine habitats will be maintained	Heritage assets will be maintained	Current amenity and recreational facilities will be maintained
2055 – 2105	Construction of secondary defences and failure of existing shoreline structures.	Properties and other assets around Pett Levels will be lost to flood propagation in areas seaward of new secondary defence. Developments at Rye Harbour are not anticipated to be included in this realignment.	The current landscape and land use will alter slightly, giving way to a transgressed shoreline and inter-tidal areas	Terrestrial and marine habitats will develop. Possible need to compensate for loss of freshwater habitats.	Heritage assets will be lost. These potentially include a section of the Royal Military Canal.	Amenity and recreational assets (caravan parks and their facilities) within the realignment area will be lost but there is the potential for green tourism, as the new habitats form.

Location reference: Cliff End to Fairlight Cove

Policy Unit reference: 4c19

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A cliffed frontage of geological, biological and landscape importance, with scattered cliff top development. The plan here is to allow ongoing natural erosion of the cliffs, to maintain cliff exposures of geological and geomorphological importance, as well as the landscape quality (SSSI and High Weald AONB) of the frontage. Cliff erosion provides an input of beach forming sediment to the foreshore which will benefit this frontage and the coast to the east. With cliff top retreat anticipated to be up to 100m over the next century, there will be some loss of properties at Cliff End, together with areas of agricultural land and the need to re-route part of the Saxon Shore Way coast path.

Preferred policies to implement Plan:

From present day: The present day policy for Cliff End to Fairlight Cove is to continue allowing the cliffs to erode and the shoreline to function freely, under a **no active intervention** policy. This will maintain the landscape quality, as well as the designated biological and geological assets. Debris from cliff erosion will front the cliff toe and provide some degree of natural protection to the cliffs, as well as providing feed for frontages downdrift. This policy is consistent with the medium and long-term and deemed self sustaining.

Medium-term: The medium term policy for Cliff End to Fairlight Cove is **no active intervention**. In response to sea level rise it is anticipated that rates of cliff erosion along this undefended frontage will increase but this will be offset by increased sediment feed which will enter the system. In the medium and long-term there will be some loss of cliff top properties, however their protection is not viable on economic or environmental grounds.

Long-term: The long-term plan for Cliff End to Fairlight Cove is to continue with **no active intervention**. The shoreline here is unprotected and retreating at a slower rate than adjacent, updrift units. As such, a headland will form between Fairlight Cove and Cliff End resulting in the possible re-routing of the coastal footpath at some point during this epoch.

Location reference: Cliff End to Fairlight Cove

Policy Unit reference: 4c19

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with no management practises	Up to 3 properties may be lost. Some agricultural land lost.	Current landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Heritage assets will become increasingly at risk and will therefore need recording and / or relocating	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible
2025 – 2055	Continue with no management practises	Up to 5 residential and commercial properties will be lost in this period. Some agricultural land lost.	Current landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Heritage assets will become increasingly at risk and will therefore need recording and / or relocating	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible
2055 – 2105	Continue with no management practises	Up to 6 residential and commercial properties will be lost in this period. Some agricultural land lost.	Current landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Heritage assets will become increasingly at risk and will therefore need recording and / or relocating	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible

Location reference: Fairlight Cove East (Sea Road)

Policy Unit reference: 4c20

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This unit covers the section of the clifftop village frontage (Sea Road) that has a cliff toe defence structure in place to limit erosion. This structure is designed to reduce, but not prevent erosion as the cliffs are important for their geology and landscape quality (AONB and SSSI). The long term plan here is to maintain the rock bund defence throughout its design life and thereafter allow it to progressively degrade. During its design life (the next 30 years) the current management and benefits will be maintained. Thereafter its presence will remain but the effectiveness will reduce in light of sea level rise and gradual deterioration of the structure. This will result in gradually increasing erosion of the backing cliff, which will ensure the geological value is maintained and a sustainable cliff top position is achieved. This approach will involve the loss of some clifftop properties, although the number will have been significantly reduced by the rock defences.

Preferred policies to implement Plan:

From present day: The present day policy for Fairlight Cove East is to allow some cliff erosion and continue to maintain the rock bund, under a policy of **managed realignment**. The rock revetment, at the toe of the cliffs, does not prevent erosion but reduces the rate therefore this should be supplemented with regular monitoring, as cliff top properties are at risk. This policy impairs the geological interest but maintains the designated landscape assets, reduces property loss, as well as not adversely affecting alongshore coastal processes. Some cliff top land will be lost, albeit a reduced amount, the debris from this will provide some natural shoreline protection making further implementation of defence works unnecessary.

Medium-term: The medium term policy for Fairlight Cove East is to continue with a policy of **managed realignment**, although in response to sea level rise it is anticipated that cliff erosion will increase during this epoch, as the efficiency of the rock bund, to provide toe protection, decreases.

Long-term: The long-term plan for Fairlight Cove East is to continue monitoring cliff erosion. Under **managed realignment** it is to be accepted that the bunds efficiency will continue to decrease with time, as a result of ongoing sea level rise, whilst cliff erosion will increase and new geological exposures will be revealed. This will result in the ongoing loss of cliff top properties. Sediment feed and transportation rates along this frontage are low and therefore impacts on evolution elsewhere are nominal.

Location reference: *Fairlight Cove (East)*

Policy Unit reference: *4c20*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Maintain, but not improve the existing rock bund	1 property considered to be at risk in this period	Current landscape maintained	Limited erosion of the cliffs which impairs the geological interests.	No significant heritage assets present	Limited amenity and recreational use on this frontage. Unlikely to be significantly affected.
2025 – 2055	Maintain, but not improve the existing rock bund	Up to 6 properties will be lost as a consequence of cliff top retreat	Current landscape maintained	A progressive increase in erosion will improve the geological interests	No significant heritage assets present	Limited amenity and recreational use on this frontage. Unlikely to be significantly affected.
2055 – 2105	Maintain, but not improve the existing rock bund	Up to 11 residential properties will be lost as a consequence of cliff top retreat	Current landscape maintained	A progressive increase in erosion will improve the geological interests.	No significant heritage assets present	Limited amenity and recreational use on this frontage. Unlikely to be significantly affected.

Location reference:	<i>Fairlight Cove Central (Rockmead Road)</i>
Policy Unit reference:	<i>4c21</i>

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This unit covers the section of the cliff top village fronted by currently active landsliding cliffs, which are of importance for their geological exposures. Recently there has been rapid retreat of the clifftop adjacent to Rockmead Road due to a landslide event which is now settling. This landsliding activity has been attributed to the combined effects of elevated ground water and cliff toe erosion. There is significant uncertainty regarding the future recession potential of the clifftop on this frontage and, as such, the value of assets that might be at risk. Similarly, there is uncertainty regarding the costs associated with works to prevent further retreat. However, it is considered that works may be technically feasible, economically viable and environmentally acceptable, pending further consideration through detailed review of the viability of implementation. As such, a Hold the Line policy is recommended for the short and medium term to protect the cliff top properties.

However, the geological importance of these cliffs, together with potential long-term impacts of a toe defence structure, means that the long-term sustainable approach is to allow the frontage to return to natural retreat. As such, the long-term plan is to undertake Managed Realignment in order to achieve a sustainable shoreline alignment, restoring the important geological exposures on this frontage and removing the barrier to natural sediment inputs (cliff erosion) and throughputs (alongshore drift).

Preferred policies to implement Plan:

From present day: The policy here is to **hold the line** in the short term in order to reduce / minimise the rate of cliff retreat. The nature of this management solution is currently being considered and will be concluded upon in an ongoing detailed study. Any recommendation will need to demonstrate environmental acceptability, although it must be realised that such a scheme may not attract central Government funding.

Given the nature of this landslide and the timescales involved in implementing a scheme, it is inevitable that, in the immediate to short term, there will be further loss of clifftop properties. However, it is recognised that any property loss (9 properties estimated) on this frontage, will be at a reduced rate from that experienced since 1997, due to the landslide now being in the process of settling. If recreational assets, such as coastal footpaths (The Saxon Shore Way), are to be maintained, they may need re-routing.

Medium-term: The medium term policy is to continue to **hold the line**, thereby minimising the amount of cliff toe and cliff top erosion. In conjunction with any structure implemented, ongoing investigations and monitoring will be required to ascertain cliff stability. During this epoch it is anticipated that there will be very little / no further loss of cliff top properties. It is also foreseen that little feed will be provided to the system from the cliffs. The retreat of the cliffs to the west, together with foreshore narrowing in front of the structure, will result in this section increasing forming a promontory, and potentially affecting alongshore drift, of coarse material, on a temporary basis.

Location reference: *Fairlight Cove Central (Rockmead Road)*

Policy Unit reference: *4c21*

Long-term:

The long-term policy for Fairlight Cove Central (Rockmead Road) is **managed realignment**. This recognises that holding the line is not sustainable due to the complex nature of the cliff's geology. It also recognises that a long term hard defence on this frontage would gradually form an artificial promontory which would increasingly disrupt the alongshore drift of shingle. The implementation of managed realignment would involve the removal/reduced effectiveness of structures built in the previous epochs. With this would come a re-activation of cliff erosion, the rate of which would be influenced by the extent of defence removal.

It is possible that, following defence failure/removal, accelerated rates of cliff retreat will be experienced as the cliff 'catches-up' to the position it would naturally have achieved without protection in the short/medium term periods. As such, it is possible that the total property losses by year 100 (a further 46 are estimated) may be the same as had defences not been constructed, however this process is highly uncertain. Whilst the property losses will be significant, there will be environmental, landscape, geological and coastal process gains as a result of the policy. It is clear that ongoing retreat is the sustainable shoreline form for this location due to erosion of the frontage maintaining the important geological value, providing beach material to the shoreline and allowing uninterrupted alongshore sediment movement. As such, adopting this policy will have no adverse affects downdrift.

Location reference: *Fairlight Cove Central (Rockmead Road)*

Policy Unit reference: *4c21*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Prior to the implementation of any defence works, cliff top retreat will continue. Potential construction of slope toe defence structure with slope stabilisation.	Up to 9 residential properties will be lost in this period due to ongoing settlement of the slope.	The coastal landscape will be impaired. Property losses, prior to defence construction, must be managed to prevent visual/ environmental impacts	Up until the construction of defence works, the continued erosion of the cliffs maintains the biological and geological assets. Thereafter it will be impaired	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible.
2025 – 2055	Maintenance of slope/toe structures, preventing slope retreat.	Further property loss will be prevented during this period.	The coastal landscape will be impaired, by the hard defences.	The biological and geological assets of the cliffs may be impaired	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible
2055 – 2105	Cliff erosion will be reactivated (following the removal / reduced effectiveness of any structures built in the first two epochs).	A further 46 residential properties could be lost in this period, if full reactivation of slope processes is allowed.	The coastal landscape is reinitiated but any property losses must be managed to prevent visual/ environmental impacts	Some erosion of the cliffs will be reactivated which will, in turn, re-activate the biological and geological assets.	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible

Location reference: *Fairlight Cove West*

Policy Unit reference: *4c22*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This frontage covers the western section of Fairlight village, where the properties are set back from the retreating cliff top. The plan is to allow cliff erosion to continue. The bedding of the sands and clay that form the cliff on this frontage creates simple vertical cliffs, rather than the landsliding experienced in the adjacent unit. The continuation of erosion will maintain the geological value of the frontage and continue to provide a source of beach material to the shoreline. It is not anticipated that any properties will become at risk from erosion for many years, probably not until towards the end of this Century.

Preferred policies to implement Plan:

From present day: The present day policy for Fairlight West is to continue allowing natural processes i.e. erosion of the cliffs and shoreline, under a **no active intervention** policy. This will maintain the landscape of the AONB and the designated biological and geological assets, as well as a free functioning shoreline. Although some cliff top open land will be lost, rates of cliff erosion are low and the majority of the assets are set back and therefore not at risk. Debris from cliff erosion provides some natural shoreline protection to the cliffs, which makes the implementation of defence works unnecessary.

Medium-term: The medium term policy for Fairlight West is to continue allowing natural processes, i.e. cliff erosion, under a **no active intervention** policy. In response to sea level rise it is anticipated that cliff erosion will increase slightly during this period.

Long-term: The long-term policy for Fairlight West is **no active intervention**; this policy will allow continued cliff erosion and shoreline retreat. It is possible that properties at the edge of Fairlight village, and the coastal footpaths, may become at risk from cliff erosion during this period, however their protection is not viable on economic or environmental grounds. Continued erosion will maintain the coastal landscape and the biological and geological assets. This recommendation is deemed sustainable over this timescale for Fairlight West, as rates of erosion, sediment feed and transportation along this frontage are low and therefore impacts on evolution elsewhere are minimal.

Location reference: *Fairlight Cove (West)*

Policy Unit reference: 4c22

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Some agricultural land lost but coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible
2025 – 2055	Cliff erosion will continue, providing nominal feed (fines) to the system	No built assets are at risk during this period	Some agricultural land lost but coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible
2055 – 2105	Cliff erosion will continue, providing nominal feed (fines) to the system	Cliff top properties may be lost to erosion (up to 23 residential properties)	Some agricultural land lost but coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible

Location reference: *Fairlight Cove West to Hastings*

Policy Unit reference: *4c23*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

An area of undefended cliffs of international environmental, geological and ornithological importance, with high landscape value, and no significant cliff top developments. The plan here is to allow natural cliff retreat, which will maintain the landscape and environmental quality of the frontage, part of which includes the Hastings Country Park. Maintenance of shoreline access associated with the Country Park should be acceptable provided it does not impact upon the environmental value of the site. There will be some loss of agricultural land, along with part of the Country Park and part of the Scheduled Iron Age Cliff Castle site at Hastings. In the long term, there will also be a need to re-route sections of the coastal footpath (the Saxon Shore Way). This approach will maintain an input of beach forming sediment to the shoreline which will benefit this area and the coast to the east.

Preferred policies to implement Plan:

From present day: The present day policy for Fairlight West to Hastings Cliffs is to continue allowing the cliffs to erode, the platform to lower and the shoreline to retreat under **no active intervention**. This will maintain the biological and geological assets, the landscape value and sediment feed to this and downdrift frontages. The character of this frontage will not alter too greatly during this or the following epochs. The shoreline is undefended other than by the natural material building beaches which results from natural collapse of cliffs.

Medium-term: The medium term policy for Fairlight West to Hastings Cliffs is the same as the short and long term policies, i.e. **no active intervention**. In response to sea level rise it is anticipated that cliff erosion will increase slightly during this period.

Long-term: The long-term policy for Fairlight West to Hastings Cliffs is to continue with **no active intervention**. Although the cliffs are expected to erode and the shoreline to retreat at a faster rate than at present, this policy is deemed sustainable, over the timescale of the SMP as there are no adverse effects and sediment feed rates and transportation along this frontage are low, thus impacts on evolution elsewhere are minimal.

Location reference: *Fairlight Cove (West) to Hastings*

Policy Unit reference: *4c23*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk during this period. Some agricultural land lost and part of the Hastings Country Park.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Progressive loss of the Iron Age Cliff Castle SAM site at Hastings.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible.
2025 – 2055	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk during this period. Some agricultural land lost and part of the Hastings Country Park.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Progressive loss of the Iron Age Cliff Castle SAM site at Hastings.	The current coastal footpath position will be at risk in the long term, and should be realigned, if possible.
2055 – 2105	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk during this period. Some agricultural land lost and part of the Hastings Country Park.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	Progressive loss of the Iron Age Cliff Castle SAM site at Hastings.	There will be an ongoing need to manage beach access at the Country Park.

Location reference: *Hastings (includes the harbour)*

Policy Unit reference: *4c24*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A dense urban area that is developed to the edge of the low coastal slope and fronted by a shingle beach of amenity and tourism importance. The coastline here has been protected since the 14th Century and the plan is to continue protecting the frontage of this regionally important town. This will include maintenance of the harbour arms that provide both a base for the local fishing fleet and build the beach to the west. It will prevent erosion of the seafront and its associated assets (tourism, heritage buildings, the Saxon Shore Way) and will aim to reduce the flooding risks. Ongoing sea level rise is likely to result in a significant narrowing of intertidal areas, unless beaches are artificially built up. This has the potential to impact upon the tourism economy of the town, as beaches along this section of the coast are an important asset.

Preferred policies to implement Plan:

From present day: The present day policy for Hastings (including the harbour) is to **hold the line**. This will be achieved by maintaining and improving the existing defences, the harbour arms, seawalls, groynes and shingle beach, to provide a suitable standard of protection to the significant assets contained within the town and harbour. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution, are likely to occur within this epoch or indeed the confines of the SMP. In maintaining the defences cliff erosion and subsequent sediment feed is prevented whilst the presence of the harbour, which acts as a promontory, continues to interrupt alongshore coastal processes.

Medium-term: The medium term policy for Hastings (including the harbour) is to **hold the line**. In response to sea level rise it is anticipated that the defence structures will need to be improved at some point during this period in order to continue providing suitable protection. This will protect the significant built assets landwards of the seawall from sea level rise, but may induce increased scour as beaches, unless artificially recharged, denude. If the beach denudes, assets currently located on the backshore (i.e. fishing huts and an amusement park) will be at risk from wave attack. Upgrading defences could impact on the character of the town, from a recreational and landscape point of view, but this will be offset by providing flood and coastal erosion protection to the built and natural assets.

Long-term: The long-term plan for Hastings (including the harbour) is to continue protecting the substantial built assets by **holding the line** in its current position. Hastings is a moderately populated town that offers a wide range of amenities. Some of these facilities, predominantly those currently located on the shingle beach, will be lost (due to a continued lack of sediment entering the system together with the effects of sea level rise) unless the beach during this epoch is artificially re-nourished. Consequently the 'appearance' and character of the frontage are expected to change as this section becomes one that is heavily defended.

Unless significant volumes of recharge material are deposited on the foreshore, it is likely that little / no beach will remain along the majority of this frontage by the end of this epoch.

Location reference: *Hastings (includes holding the harbour)*

Policy Unit reference: *4c24*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All properties and seafront assets are protected, including promenade.	Current landscape value sustained	Limited conservation interest on this frontage.	Heritage assets throughout this historic town maintained	Current amenity and recreational facilities maintained
2025 – 2055	Significantly increase hard defences in the long term, as beaches narrow and sea level rises.	All properties and seafront assets are protected, including promenade.	Increased engineering has an adverse effect on the land and townscapes.	Intertidal habitats diminish as sea level rises.	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	Some shoreline recreational facilities will be lost due to a denuding beach & increased engineering. This could be mitigated against with sediment re-nourishment
2055 – 2105	Significantly increase hard defences in the long term, as beaches narrow and sea level rises.	All properties and seafront assets are protected, including promenade.	Increased engineering has an adverse effect on the land and townscapes.	Intertidal habitats diminish as sea level rises.	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	No loss of community or recreational facilities landward of the defences. Beach narrowing mitigated against with re-nourishment, although this may be offset by predicted sea level rise

Location reference: Bulverhythe and Glyne Gap

Policy Unit reference: 4c025

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Defended since the 1800's, the largely low-lying developed frontage backed by the Combe Haven Valley is of environmental importance. To prevent flooding of the extensive coastal developments, which include commercial and residential areas, infrastructure (such as the Eastbourne to Hastings railway line), heritage assets and internationally important freshwater habitats of Combe Haven Valley, the plan is to implement protection. This will be achieved through the construction of hard defences, which are the subject of an ongoing scheme. A long term consequence will be narrowing of the beach, which will have implications for the amenity value of this frontage, (beach huts, which date from the 1930's, stretch along the shingle beach, which is used by locals and tourists for recreational purposes) thus copious amounts of beach nourishment will be required if this facility is to be maintained.

Preferred policies to implement Plan:

From present day: The present day policy for Bulverhythe and Glyne Gap is to continue protecting the assets along the shoreline and in the backing, low-lying hinterland. This will be achieved by maintaining and upgrading the existing defences, a seawall, groynes and shingle recharge, under a policy of **hold the line**. Rates of sediment feed and transportation along this frontage are low, therefore very little change in coastal processes or impacts on evolution, is likely to occur within this epoch or indeed the confines of the SMP.

Medium-term: The medium term policy for Bulverhythe and Glyne Gap is to **hold the line**. In response to sea level rise it is anticipated that the defence structures will increase at some point during this period. Whilst any upgrading will impact on the character of the frontage (e.g. the reduction of foreshore exposures and the impeding of the seascape), this will be offset by the necessary flood and coastal erosion protection provided.

Long-term: The long-term plan for Bulverhythe and Glyne Gap is to **hold the line** and protect socio-economic and environmental assets. This will be achieved by maintaining and upgrading the existing defence structures. With an increase in sea level rise and a lack of beach building material entering the system, it will become increasingly difficult to retain a beach along this frontage. A lack of sediments on the foreshore will result in scour (at the toe of the defences) therefore more substantial structures may need to be constructed (which will impact on foreshore exposures, although the effect of this can be mitigated if their study is facilitated) or more frequent maintenance may be required at some point during this epoch. Thus the character of this frontage will increasingly change, from one with an amenity value to one that is heavily defended. Despite the likelihood of no beach remaining by the end of this epoch, this recommendation is deemed to be sustainable, for Bulverhythe and Glyne Gap, as rates of sediment feed and transport into and along this frontage are low and therefore downdrift impacts are minimal and the assets remain protected from coastal erosion and flooding.

Location reference: Bulverhythe and Glyne Gap

Policy Unit reference: 4c025

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	New defence scheme due to be constructed in near future, to provide 100 year defence. Will require ongoing maintenance.	All residential and commercial properties and other assets, at risk from flooding and erosion, will be protected, including A259 road and the rail line.	Increased engineering will have some adverse effect on the land and townscape	Current marine and terrestrial habitats maintained	Heritage assets maintained	Current amenity and recreational facilities maintained
2025 – 2055	New defence scheme due to be constructed in near future, to provide 100 year defence. Will require ongoing maintenance.	All residential and commercial properties and other assets, at risk from flooding and erosion, will be protected, including A259 road and the rail line.	Increased engineering will have some adverse effect on the land and townscape	Terrestrial (freshwater) habitats maintained. Shingle beach narrows.	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	Some shoreline recreational facilities will be lost due to a denuding beach & increased engineering
2055 – 2105	New defence scheme due to be constructed in near future, to provide 100 year defence. Will require ongoing maintenance.	All residential and commercial properties and other assets, at risk from flooding and erosion, will be protected, including A259 road and the rail line.	Increased engineering will have some adverse effect on the land and townscape	Terrestrial habitats maintained although shingle beach lost.	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	No loss of community or recreational facilities landward of the defences. Beach narrowing could be mitigated against with re-nourishment, although this may be offset by predicted sea level rise.

Location reference: *Bexhill to Cooden*

Policy Unit reference: *4c026*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Dense urban areas extending to the edge of the coastline, including low cliffs and shallow coastal slope. The long term plan for this frontage ensures the protection of extensive residential, commercial (crab and lobster catches) and tourism/amenity related assets (golf course) along this frontage. This will largely be achieved through the maintenance and improvement of existing defence structures. In the long term, this approach will result in significant narrowing of the beaches due to rising sea levels, which could impact upon the tourism economy of the town.

Preferred policies to implement Plan:

From present day: Groynes and a seawall have halted the historic erosion of this shoreline and the present day policy for Bexhill and Cooden is to continue with this, protecting the substantial assets. This will be achieved by maintaining and upgrading the existing defences, under a policy of **hold the line**. Some localised erosion of the low cliffs does occur but the sediment this yields is insufficient to retain an adequate beach at this and neighbouring frontages. Rates of sediment feed and transportation along this frontage are low, therefore very little change in coastal processes or impacts on evolution, is likely to occur within this epoch or indeed the confines of the SMP.

Medium-term: The medium term policy for Bexhill and Cooden is the same as the short and long term policies i.e. **hold the line**. In response to sea level rise it is anticipated that the defence structures will increase at some point during this period. This will impact on the character of the frontage but will protect significant assets from flooding and erosion. 'Coastal squeeze' will result which will impair foreshore form and potentially impact features like the dinosaur track way, present on the foreshore, close to the seaward edge of the shingle fronting the sailing club.

Long-term: The long-term plan for Bexhill and Cooden is to **hold the line** and protect predominantly anthropogenic assets. This will be achieved by maintaining and upgrading existing defence structures. With an increase in sea level rise and a lack of beach building material entering the system, it will become increasingly difficult to retain a beach along this frontage as the foreshore steepens under the phenomenon of 'coastal squeeze'. A lack of sediment on the foreshore will result in scour (at the toe of the defences) therefore alternative structures may need to be constructed at some point during this epoch. Thus the character of this frontage will increasingly change, from one with an amenity value to one that is heavily defended. Despite the likelihood of no beach remaining by the end of this epoch, and assets like the dinosaur track way being impaired, this recommendation is deemed to be sustainable for Bexhill and Cooden as rates of sediment feed and transport into and along this frontage are low. As such, impacts on evolution downdrift are negligible and the assets remain protected

from coastal erosion and flooding.

Location reference: *Bexhill to Cooden*

Policy Unit reference: *4c026*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All residential and commercial properties and other assets are protected.	Current landscape value sustained	Current marine and terrestrial habitats maintained	Heritage assets maintained	Current amenity and recreational facilities maintained
2025 – 2055	Significantly increase engineering and management practises to compensate for sea level rise.	All residential and commercial properties and other assets are protected.	Increased engineering may have an adverse effect on the land and townscape	Terrestrial habitats maintained.	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	Some shoreline recreational facilities will be lost due to a denuding beach & increased engineering
2055 – 2105	Significantly increase engineering and management practises to compensate for sea level rise.	All residential and commercial properties and other assets are protected.	Increased engineering may have an adverse effect on the land and townscape	Terrestrial habitats maintained, shingle beach lost	Any intertidal heritage assets maybe lost but the remaining terrestrial heritage assets will continue to be protected	No loss of community or recreational facilities landward of the defences. Beach narrowing could be mitigated against with re-nourishment, although this may be offset by predicted sea level rise.

Location reference: *Hooe and Pevensey Levels*

Policy Unit reference: *4c027*

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Low lying frontage with residential developments backing much of the coast and areas of international environmental importance within the flood risk area. The plan here is to protect the numerous properties behind the existing beach and important infrastructure such as the railway line and A259 road. The land backing the coast and throughout the backing flood risk area, is very low, such that any inundation could potentially be huge. Thus the benefits of continuing to provide flood protection include protecting large areas of agricultural land, numerous important heritage sites, properties throughout the Level and large areas of internationally important freshwater habitats, on the Pevensey Levels, from tidal inundation. The potential flood area also extends into Eastbourne's urban area so flooding risks to this are also reduced. This section of coast is already heavily managed and in the future, due to sea level rise, it is likely that hard defences will be required to provide an adequate standard of protection in the long term. This would result in a narrowing of the beach such that those properties currently built upon the crest of the beach may be lost.

Preferred policies to implement Plan:

From present day: The present day policy for Hooe and Pevensey Levels is to **hold the line** and continue protecting the low lying hinterland and shoreline settlements by maintaining the seawall, groyne and shingle recycling. Presently the shoreline is retreating, thus without ongoing beach recharge and maintenance of these defence structures all foreshore sediments would be lost very quickly. This situation will be exacerbated in the future; with sea level rise it will become increasingly probable that hard defences will be required to provide the adequate standard of protection in the long term.

Medium-term: The medium term policy for Hooe and Pevensey Levels is to continue to **hold the line**, although the position at which this is achieved will become increasingly difficult with sea level rise and a continually diminishing sediment supply. To accomplish this, management practises may need to change to a more heavily engineered frontage at some point during this epoch.

Long-term: The long-term policy for Hooe and Pevensey Levels is to continue protecting the assets through a **hold the line** policy which may require substantial engineering structures. With numerous socio-economic, environmental and heritage assets at risk and the need to protect them, the character of this frontage will change, from one that offers a beach and associated amenities to one that does not, due to sea level rise and a lack of contemporary sediment entering the system.

Location reference: *Hooe and Pevensey Levels*

Policy Unit reference: *4c027*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All properties and built assets are protected	Current landscape value sustained	Current marine and freshwater habitats maintained	Heritage assets throughout backing flood risk area maintained	Current amenity and recreational facilities maintained
2025 – 2055	Significantly increase engineering and management practises, with extensive hard structures required as beach denudes.	Beach crest properties may be lost but the remaining properties and built assets will continue to be protected	Increased engineering has an adverse effect on the landscape	Freshwater habitats maintained important shingle habitat reduced.	Shoreline assets will be lost but the remaining heritage assets will continue to be protected	Some recreational facilities will be lost due to a denuding beach & increased engineering. This could be offset by re-nourishment however this option would require careful consideration
2055 – 2105	Significantly increase engineering and management practises, with extensive hard structures required as beach denudes.	Beach crest properties may be lost but the remaining properties and built assets will continue to be protected	Increased engineering has an adverse effect on the landscape	Terrestrial habitats maintained, shingle beach and associated conservation interest lost	Shoreline assets will be lost but the remaining heritage assets will continue to be protected	No loss of community or recreational facilities landward of the defences. Beach narrowing could be mitigated against with re-nourishment, although this may be offset by predicted sea level rise

Location reference: **Sovereign Harbour**

Policy Unit reference: 4c028

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

A major marina development extending to the beach edge, within a flood risk area. The plan is to continue protecting the extensive developments from flooding and erosion. This approach will ensure the continued operation of the harbour, marina, associated commercial and recreational operations and the large number of residential developments. This unit also forms part of a flood risk area linked to the adjacent frontage, so protection to these areas will also be provided. An impact of this is that the 'Crumbles' shingle, upon which the development is built, will be prevented from returning to the shoreline system. This shingle supply could benefit beaches to the east, if it were allowed to erode. Without this input, there will be narrowing of the beach due to rising sea levels, such that it is likely that there will be little or no beach here in 100 years time and hard defence structures being required.

Preferred policies to implement Plan:

From present day: The present day policy for Sovereign Harbour is to continue to **hold the line** by maintaining and improving the existing defences (shingle ridges and groynes form the defences to the west, whilst harbour arms and a seawall protect the assets to the east) to protect the significant assets from flooding and coastal erosion. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch or indeed the confines of the SMP. In maintaining the defences the release of the Crumbles shingle source is prevented, alongshore coastal processes are interrupted and the shoreline is held seaward of its natural alignment. Despite these impacts there are benefits in holding the line i.e. this frontage and the frontage updrift retains a certain degree of protection. The shingle source at the Crumbles although substantial is not sufficient to truly benefit frontages downdrift beyond the long term and once released, would result in increased pressure for this frontage.

Medium-term: The medium term policy for Sovereign Harbour is to continue protecting the marina complex and **hold the line**, by maintaining and upgrading, the existing seawall, harbour arms and groyned shingle beach, to provide adequate protection against sea level rise.

Long-term: The long-term plan for Sovereign Harbour is to continue protecting the substantial built assets by **holding the shore-line** in its current position. The character of Sovereign Harbour is unlikely to change too significantly, as this section of the coast is already heavily defended but retaining a beach in front of the significant defence structures will become increasingly difficult with sea level rise. Thus changes in management approach may need to be sought or an acceptance that amenities along the shoreline will be lost. For the SMP this recommendation is deemed sustainable, for although a 'store' of shingle is being held up, this arrested material provides protection to this frontage and its substantial assets as well as the immediate frontage updrift.

Location reference:	Sovereign Harbour
Policy Unit reference:	4c028

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All residential and commercial properties and other assets are protected. Harbour facilities maintained, including lifeboat.	Current landscape value sustained	Current marine and terrestrial habitats maintained	Heritage assets will be maintained.	Current amenity and recreational facilities maintained
2025 – 2055	Increase engineering and management practises, with possible requirement for more hard structures.	All residential and commercial properties and other assets are protected. Harbour facilities maintained, including lifeboat.	Increased engineering has an adverse effect on the landscape and townscape	Terrestrial habitats maintained, shingle beach habitats reduced	Any shoreline heritage assets may be lost due to beach narrowing or defence construction. Terrestrial assets protected.	No loss of community or recreational facilities landward of the defences. Beach narrowing would reduce the value of the beach for the purpose of amenity and recreational use.
2055 – 2105	Increase engineering and management practises, with possible requirement for more hard structures.	All residential and commercial properties and other assets are protected. Harbour facilities maintained, including lifeboat.	Increased engineering has an adverse effect on the landscape and townscape	Terrestrial habitats maintained, shingle beach habitats reduced	Any shoreline heritage assets may be lost due to beach narrowing or defence construction. Terrestrial assets protected.	No loss of community or recreational facilities landward of the defences. Beach quality may reduce further/be lost as the beach continues to narrow.

Location reference: **Eastbourne**

Policy Unit reference: 4c029

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

This is a dense urban development with both cliffed and low-lying sections, fronted by a popular tourist beach. The plan is to continue protecting the frontage of this regionally important town. The seafront at Eastbourne is of great value to its economy (tourism) so the protection of amenity assets such as the pier and promenade are critical. In the long term however, this will inevitably result in a narrowing of the beach. Subsequently significant amounts of beach nourishment will be required if an amenity beach is to be maintained. This approach will ensure the protection of commercial and residential areas, as well as heritage assets such as the Wish Tower. The low lying, eastern part of the frontage is linked to the Pevensey Levels flood area, so protection will be afforded to low lying assets in that adjacent area, as well as the long term protection of the Holywell groundwater aquifer in the chalk cliffs west of the town.

Preferred policies to implement Plan:

From present day: The present day policy for Eastbourne is to **hold the line**, continuing to protect the densely populated town and the substantial assets by maintaining and improving the existing seawall, groynes and supplementing this with a recharged shingle beach. With rates of sediment feed and transportation along this frontage being low, very little change in coastal processes or impacts on evolution are likely to occur within this epoch or indeed the confines of the SMP. In maintaining the defences the shoreline is held seaward of its natural alignment and the coast is prevented from functioning freely, whilst the groynes along this frontage interrupt alongshore sediment transport.

Medium-term: The medium term policy for Eastbourne is to continue to **hold the line**. In response to sea level rise it is anticipated that the defence structures will increase at some point during this period.

Long-term: Continue to **hold the line**, which will be achieved by maintaining and upgrading the present defence structures. This will continue to protect assets from predicted sea level rise but will probably induce increased scour. Beaches along this section of the coast are anticipated to denude substantially during this epoch and additional maintenance will be necessary to sustain an amenity driven frontage. If this becomes technically challenging then alternative (hard engineering) options may need to be sought. If this were to be the case then the character of the frontage would change, this recommendation is deemed sustainable over the SMP timescale although this may not be technically viable in the much longer term.

Location reference: *Eastbourne*

Policy Unit reference: *4c029*

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Continue with current practises	All residential and commercial properties and other assets are protected. Includes seafront amenities and pier.	Landscape value sustained	Current marine and terrestrial habitats maintained	Heritage assets maintained throughout frontage.	Current amenity and recreational facilities maintained
2025 – 2055	Increase engineering and management practises to compensate beach narrowing and sea level rise.	All residential and commercial properties and other assets are protected includes seafront amenities and pier.	Increased engineering has an adverse effect on the landscape and townscape	Terrestrial habitats maintained	Heritage assets maintained throughout frontage.	No loss of community or recreational facilities landward of the defences. Beach narrowing mitigated against with re-nourishment.
2055 – 2105	Increase engineering and management practises to compensate beach narrowing and sea level rise.	All residential and commercial properties and other assets are protected includes seafront amenities and pier.	Increased engineering has an adverse effect on the landscape and townscape	Terrestrial habitats maintained	Heritage assets maintained throughout frontage.	No loss of community or recreational facilities landward of the defences. Beach narrowing mitigated against with re-nourishment, although this may be offset by sea level rise.

Location reference: *Beachy Head*

Policy Unit reference: 4c030

SUMMARY OF THE PLAN AND JUSTIFICATION

Plan:

Beachy Head marks the western extremity of the SMP frontage. It is an internationally important landmark area in the Shoreline Management Plan area, designated for its landscape quality (AONB and Heritage Coast) and geological and habitat value of the cliffs and backing downland (SSSI). These features will be maintained through allowing gradual erosion of the cliff toe with corresponding retreat of the cliff top to maintain the famous 'white cliffs'. The coastal footpath (South Downs Way) may require re-routing as the clifftop retreats, but no built assets are threatened. Sea level rise may result in narrowing of the environmentally important intertidal chalk platform, but this is a natural process which will be partially offset by the creation of a higher platform as the cliffs retreat.

Preferred policies to implement Plan:

From present day: The present day policy for Beachy Head is to continue allowing natural processes i.e. erosion of the chalk cliffs, the rock platform and the cliff toe, under a **no active intervention** policy. This will maintain the landscape, an AONB, the designated biological and geological assets (SSSI), as well as a free functioning shoreline. Although some cliff top agricultural land will be lost, rates of cliff erosion are low and the number of assets at risk is none. Debris from erosion / cliff falls along with the fronting rock platform provides some natural shoreline protection to the cliffs making the implementation of defence works unnecessary

Medium-term: The medium term policy for Beachy Head is to continue allowing natural processes to take place i.e. erosion of the chalk cliffs and erosion of the shoreline under a **no active intervention** scenario. In response to sea level rise and with the continuation of no defences it is anticipated that cliff erosion may increase slightly during this period.

Long-term: The long-term policy for Beachy Head is **no active intervention**; allow natural processes to continue, with the erosion of the chalk cliffs, the rock platform and the shoreline. Despite ongoing sea level rise, erosion and transportation rates along this frontage will remain low. Thus the general character of this frontage i.e. one of outstanding natural beauty, will not alter significantly. The coastal footpath (the South Downs Way) may need re-routing over time, but no built assets are threatened. Narrowing of the intertidal chalk platform will occur due to sea level rise. However, this is a natural process which will be partially offset by the creation of a higher platform as the cliffs retreat. It is recognised that the sustainable shoreline at Beachy Head is the eroding one and as downdrift impacts are nominal this policy is recommended.

Location reference:	Beachy Head
Policy Unit reference:	4c030

IMPLICATIONS OF THE PLAN FOR THIS LOCATION

Time Period	Management Activities	Property, Built Assets & Land Use	Landscape	Nature Conservation	Historic Environment	Amenity & Recreational Use
2025	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk. Some cliff top agricultural land will be progressively lost.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk on this part of the Beachy Head cliffs.	The current amenity and recreational facilities will be maintained. However, cliff top erosion may require the realignment of the coastal footpath.
2025 – 2055	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk. Some cliff top agricultural land will be progressively lost.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk on this part of the Beachy Head cliffs.	The current amenity and recreational facilities will be maintained. However, cliff top erosion may require the realignment of the coastal footpath.
2055 – 2105	Cliff erosion will continue, providing nominal feed (fines) to the shoreline system	No built assets are at risk. Some cliff top agricultural land will be progressively lost.	Coastal landscape maintained	The continued erosion of the cliffs maintains the biological and geological assets	No significant heritage assets at risk on this part of the Beachy Head cliffs.	The current amenity and recreational facilities will be maintained. However, cliff top erosion may require the realignment of the coastal footpath.

6 Action Plan

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6 Action Plan

6.1 OBJECTIVES

The objectives of the South Foreland to Beachy Head Action Plan are to:

- facilitate implementation of the SMP policies;
- identify and/or promote studies to further/improve understanding where this is required to resolve policy and/or implementation;
- promote use of the SMP recommendations in spatial planning;
- identify procedures for the management of the SMP until its next review;
- establish a framework to monitor progress against the action plan; and
- initiate a future SMP review.

The following sections outline the steps required to ensure SMP recommendations are taken forward in the short term, both in planning and coast defence, and that necessary actions to facilitate the implementation of the longer-term policies are initiated as appropriate.

As such, the Action Plan identifies the steps to be taken in the period up to the next review of the SMP. This is nominally a 5 to 10 year process, however the plan recognises that there may be a reassessment of this timescale should an earlier review be considered necessary.

6.2 COASTAL DEFENCE MANAGEMENT ACTIVITIES

The majority of the South Foreland to Beachy Head SMP policy recommendations will be implemented through the process of coastal defence strategy development/review and the subsequent implementation of coastal defence schemes. The process of implementation will be underpinned by monitoring of the shoreline to identify ongoing behaviour, together with targeted study/investigation where specific uncertainties need to be addressed to enable/assist short, medium and long-term policy implementation.

In this area, the entire frontage is routinely monitored as part of the South East Strategic Coastal Monitoring Programme. Data collected from this monitoring programme will be used to review predicted cliff retreat rates and shoreline change; provide information for future updates of the SMP, continually improve certainty in the shoreline evolution and extent of erosion that may be expected. Table 6.1 does not refer further to this, rather focusing on the requirements from interrogation of the data this programme produces.

For each Policy Unit Table 6.1 identifies:

- the coastal defence strategy covering the unit;
- the nature of works required to implement the short term policy;
- whether the Strategy recommendations need to be reviewed in order to facilitate the 'short term' work requirements;
- any specific requirements for review of monitoring data from the unit;

- whether studies are required to either clarify/refine the policies or facilitate the medium/long term policies; and
- the organisation that will be responsible for promoting the actions.

This considers both the immediate implementation of the short term policies, and any preparatory works required to implement the medium/long term policies. The table also identifies the organisations responsible for undertaking each action.

Table 6.1 does not set a timetable/programme for undertaking these actions; however the relative priorities of each action are identified as High (H), Medium (M) or Low (L). For each of these the indicative timetable for action is likely to be as follows:

High (H) within the next five years (2010)

Medium (M) within the next ten years (2015)

Low (L) within the next twenty years (2025)

Please note that where no action is required no priority is given

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c01	South Foreland to Dover	None in place	None	No	-	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L	None		Dover DC
4c02	Dover		Maintenance of existing structures	No Limited alongshore linkages mean works can be undertaken without need for strategy.	-	None	-	None		Dover DC
4c03	Shakespeare Cliff		None	No	-	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L	None		Dover DC
4c04	Samphire Hoe		Maintenance of existing structures	No Limited alongshore linkages mean works can be undertaken without need for strategy.	-	None	-	None		Euro Tunnel
4c05	Abbots Cliff		None	No	-	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L	The long term risk to the railway line must be reviewed in detail.	M	Network Rail and Dover DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c06	Folkestone Warren		Maintenance and improvement of existing structures	No Limited alongshore linkages mean works can be undertaken without need for strategy	-			The long term risk to the railway line must be reviewed in detail.	M	Network Rail, Shepway DC & Dover DC
4c07	Copt Point		None	No	-	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L			Shepway DC
4c08	Folkestone and Sandgate	Cliff End to Folkestone - ongoing	Maintenance of recently completed scheme, and other existing structures.	No strategy in place for Coronation Parade frontage, but limited alongshore linkages mean works can be undertaken without need for strategy. Ongoing strategy review covers area west of harbour.	L	Beach performance as part of ongoing recycling operations	H			Shepway DC
4c09	Sandgate to Hythe		Maintenance of recently completed scheme	Ongoing	L	Beach performance as part of ongoing recycling operations	H			Environment Agency & Shepway DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c10	Hythe Ranges		Maintenance of existing structures	Ongoing	H	Performance of shingle beach fronting rock/rubble defences.	L	The ongoing Strategy will verify the short and long term options for Hythe Ranges. The conclusions of this must be reviewed against the SMP policies and reported.	H	Environment Agency, Shepway DC & MoD
4c11	Dymchurch Redoubt to Romney Sands		Implementation of recently approved Dymchurch scheme, and ongoing maintenance of remaining frontages	Ongoing	M					Environment Agency & Shepway DC
4c12	Romney Sands to Dungeness Power Station		Dune management at Greatstone.	Ongoing	L			Clarification of Greatstone dune processes to understand past and future development and management approaches.	M	Environment Agency & Shepway DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c13	Dungeness Power Station		Ongoing recycling operations to maintain required standard of protection.	Ongoing	L	Annual Beach Inspections (Beach Feed Season) conducted by BE	M			British Energy and British Nuclear Fuels Limited
4c14	Lydd Ranges		Construction of set-back defences to facilitate return to 'natural beach'. Cease current recycling/ re-profiling activities.	Ongoing Will confirm/ establish short, medium and long term policies for this frontage	H	Monitoring to include the response of the shoreline to 'natural' process along this frontage and changes in habitat.	M	The ongoing Strategy will identify the short and long term options for Lydd Ranges. The conclusions of this must be reviewed against the SMP policies and reported.	H	Environment Agency, Ministry of Defence, English Nature, British Energy, British Nuclear Fuels.
4c15	Jury's Gap to The Suttons		Construction of new hard defence to improve standard of protection.	Ongoing Will confirm/ establish short, medium and long term policies for this frontage	H					Environment Agency & Rother DC
4c16	Camber Sands		Continued dune management	Ongoing	L	Review sand dune movement				Environment Agency & Rother DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c17	River Rother		Ongoing scheme construction on western bank, and maintenance/ improvement of defences on eastern bank. Possible limited realignment opportunities on both banks.	Ongoing	L			Promotion of managed realignment opportunities for habitat creation of east and west banks.	M	Environment Agency & Rother DC
4c18	River Rother to Cliff End		Ongoing implementation of flood defence scheme	Ongoing Will establish likely position for long term realignment.	M			Practicalities of long term managed realignment proposals, and strategy for removal of assets at risk. Potential habitat recreation sites to be investigated in the medium term.	M	Environment Agency & Rother DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c19	Cliff End to Fairlight Cove	Cooden to Cliff End	None	Yes The existing strategy has not yet been agreed by Defra and the base data that was used is now out of date. It is therefore appropriate that the strategy is reviewed to verify the short, medium and long term policies for this frontage.	H	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L			Rother DC
4c20	Fairlight Cove East (Sea Road)		Maintenance of existing rock bund	Yes The existing strategy has not yet been agreed by Defra and the base data that was used is now out of date. It is therefore appropriate that the strategy is reviewed to verify the short, medium and long term policies for this frontage.	H	Review cliff retreat rates against predictions, to ensure predicted losses are correct.	M			Rother DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c21	Fairlight Cove Central (Rockmead Road)		Possible construction of rock revetment and slope drainage.	Yes The existing strategy identifies this section as 'Do Nothing'. This review is not an immediate requirement as the Scoping Study is considering works.	M	Ongoing detailed monitoring of slope movements to establish the 'phase' of landslide activity.	H	Ongoing Fairlight Scoping Study will identify viability of engineering solution. Recommendations of this must be fed back to the SMP. Due to immediate risk, Rother DC must work with homeowners regarding safety and need to vacate immediate risk areas.	H	Rother DC
4c22	Fairlight Cove West		None	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. The strategy needs to be reviewed to verify the short, medium and long term policies for this frontage.		Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L			Rother DC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c23	Fairlight Cove West to Hastings		None	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.		Review cliff retreat rates against predictions, to ensure predicted losses are correct.	L			Rother DC & Hastings BC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c24	Hastings		Maintenance of existing structures and improvements to groynes and harbour structures as necessary.	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.		Review beach profile data to ensure that a suitable beach is maintained	M			Hastings BC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c25	Bulverhythe and Glyne Gap		Ongoing construction of revetment at Bulverhythe, and maintenance of other structures.	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						Environment Agency and Hastings BC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c26	Bexhill to Cooden		Maintenance of existing structures throughout frontage.	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						Rother BC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
4c27	Hooe and Pevensey Levels	Redoubt Gardens to Cooden	Ongoing beach management implementation through PFI contract.	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						Environment Agency (Pevensey Coastal Defence Limited). The contract extends to Sovereign harbour entrance.
4c28	Sovereign Harbour		Ongoing maintenance of existing defences and beach management	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic						Sovereign Harbour Co., Environment Agency & Eastbourne BC

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
				Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						
4c29	Eastbourne		Ongoing maintenance of existing defences and operation of beach management plan	Yes The existing strategy has not yet been approved by Defra. The base data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						Environment Agency & Eastbourne BC
4c30	Beachy Head	Cuckmere Haven to Redoubt Gardens	On going maintenance of existing defences and operation of beach	Yes The existing strategy has not yet been approved by Defra. The base	H					Eastbourne BC, Wealden DC and Environment Agency

Table 6.1 Coastal Defence Management Activities

Policy Unit		Coast Defence Strategy	Works for Short Term Policy	Strategy Review Required?	Priority	Specific Monitoring Requirements	Priority	Specific Study Requirements	Priority	Responsibility
			management plan; and None for the Beachy Head section of the frontage	data used is now out of date. A review of the preferred Strategy Option may be required, with data from the Strategic Monitoring Programme, to review and verify the short, medium and long term policies for this frontage.						

6.3 APPLICATION OF THE SMP IN SPATIAL PLANNING

The risk management policies set out in the SMP can not be implemented through coastal defence management alone. There is a need for spatial planning to adopt the policies, and understand their consequences, such that risk areas are avoided by development, and future changes in policy are facilitated.

The table below sets out actions which aim to ensure that the SMP policies are appropriately reflected in the relevant Regional Plan and Local Development Frameworks. The aim of this being that the long term coastal erosion and flooding risks are a material consideration in the planning process; again the relative priorities of these actions are indicated.

Table 6.2 Actions for Spatial Planning

Action	Priority	Responsibility
Communicate the completion of the SMP to the Regional Assembly to ensure appropriate reflection in the Regional Plan.	L	South East Coastal Group (Chair/Secretary)
Inform Local Authority Planning Officers of final SMP recommendations and implications.	H	Local Authority Technical (Engineering) Officers
Submit SMP to Local Authority Planning Committees with request to 'note' the recommendations.	H	Local Authority Planning Officers to report to planning committee
Inclusion of the SMP as a section of or annex to the Local Development Framework.	M	Local Authority Planning Officers & Planning Committees
Adoption of preferred policy 'risk zones' as development planning consideration.	H	Local Authority and Environment Agency Planning Officers
Promote the development of planning policies to address potential housing stock losses through implementation of 'realignment' and 'no active intervention' policies.	M	Local Authority and Environment Agency Planning Officers
Assess the strategic requirement for habitat creation as a result of implementing the short, medium and	M	English Nature, Environment Agency,

long term policies on European sites.		Local Authorities
Investigate possible locations for habitat creation. This should be done in conjunction with LDF development allocations, catchment management plans and flood management strategies.	M	English Nature, Environment Agency, Local Authorities

6.4 FURTHER ACTIONS TO FACILITATE MEDIUM/ LONG TERM POLICIES

In addition to the specific actions outlined in the proceeding sections, there is also a need for some activities to be progressed, which require consideration beyond the scale of the SMP, and therefore are largely beyond the control of the Coastal Group (or its constituent organisations). However it is important that the need for these studies is promoted with the relevant bodies.

These studies/initiatives, and the actions for the Coastal Group, are outlined in Table 6.3, together with their priority.

Table 6.3 Further Actions to facilitate medium/long term policies

Action	Priority	Responsibility
Promote the investigation, and implementation, of mechanisms to facilitate the removal of 'at risk' assets (properties, infrastructure, etc), to enable the implementation of long term realignment/NAI policies. This will require a review of national policy/legislation.	H	South East Coastal Group to promote with Defra, through ongoing 'Making Space for Water' initiatives.
Promote a formal policy link between SMPs and Local Development Frameworks/Regional Plans. This will require Defra and ODMP to review current arrangements.	M	South East Coastal Group to promote with Defra through Coastal Group Chairs forum.
Promote Central Government funding for all consultation/ stakeholder activities in the development of SMPs, and strategies/schemes.	L	South East Coastal Group to promote with Defra through Coastal Group Chairs forum.

Develop exit strategies/management plans for the relocation of people and removal of assets when they become at risk from erosion or flooding.	M	Local Authority Technical Officers
Develop medium to long-term plans for relocation of services and facilities that will be lost to erosion, e.g. outfalls, highways.	L	Local Authority Technical Officers to contact relevant service and utility providers, highways agencies.

6.5 MANAGEMENT OF SMP UNTIL NEXT REVIEW

Through the implementation of actions outlined in sections 6.2 to 6.4 it is likely that the technical understanding of this coastline, the basis of some SMP policies, and the wider shoreline management framework may change. As such, it is important that progress against these actions is monitored by the South East Coastal Group so that any developments which might affect policy, and hence works, are notified, and also so that the need for revision of the SMP can be monitored.

Tables 6.1 to 6.3 effectively provide a checklist against which progress can be monitored. It should be the responsibility of the Coastal Group to promote and monitor progress, with the Action Plan retained on the agenda for all future Coastal Group meetings.

The South Foreland to Beachy Head SMP website (part of the coastal group website) will have an 'Updates' page, on which the three tables (Tables 6.1 - 6.3) can be placed and progress against the actions reported. This will include identification of the implications of any study outputs for the relevant SMP policies. The 'updates' are important as the means of disseminating progress to stakeholders and as such the existence of this page should be reported during the final SMP dissemination process. The responsibility for maintaining the 'Updates' page should remain with the Coastal Group.

It is not possible at this time to set a date for the next review of the SMP. It is considered likely that a 10 year period may be appropriate, however it is vital that changes in understanding or the shoreline management framework are monitored to establish if there comes a point (within the next 10 years) that the SMP policies become sufficiently out of date as to warrant a full review of the plan. This will be a judgment made by the coastal group, as it is not possible to prescribe exactly at what point this should be.

Regardless, it is considered that the review should be undertaken in 10 years if it has not happened before then, in order to ensure the policies and longer term plan remain appropriate.