Section 2

USE OF THE PLAN

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THE SHORELINE MANAGEMENT PLAN

SUBCELL 3c

LOWESTOFT TO HARWICH

SECTION 2

USE OF THE PLAN

CONTENTS

1 INTRODUCTION

This section provides background on the management policies developed and definition of the information, terminology and maps contained therein.

2 MANAGEMENT FRAMEWORK

A framework of Process Units and Management Units has been established to enable sustainable shoreline management and coastal defence strategies to be established for the future. The following sub-sections describe the methodology and reasoning behind subdividing the coastline into individual units for management purposes

2.1 Process Units

A Process Unit represents a section of coastline that possesses coherent characteristics in terms of natural coastal processes which are sufficiently independent of adjacent stretches of shoreline. Parameters such as wind, waves and tidal currents have been analysed, along with geological and littoral features, to establish those areas which are essentially process based divisions.

The key to achieving effective management of the shoreline is knowledge of the processes and their interaction along the coast. All management decisions should be linked to the processes as well as existing land use and the implications for defence assessed in relation to these. Management policies therefore need to be addressed on a broader scale than the Management Units alone. The defence options determined for each Management Unit must be appraised against the overall processes within any Process Unit. The structure of the management for this shoreline is therefore one where conformity with the requirements of the Process Unit is paramount.

Figure 2.1 shows the division of the four main Process Units and their Management Units for this subcell.

2.2 Management Units

The purpose of further subdivision of the process units into smaller components is to identify and develop the different defence options which will enable the main objectives to be met, whilst being in accordance with the overall natural process requirements for the Process Units.

In the MAFF Guidelines for Shoreline Management Plans the definition of a Management Unit is "a length of shoreline with coherent characteristics in terms of coastal processes and land use". This definition has been expanded to include "and whose chosen defence option for the future is consistent with the overall strategic requirements of the Process Unit".

2.3 Key to Process Units and Management Units

The general identifier for each Process Unit has been selected based upon the midpoint of the area ie BEN for Benacre, MIN for Minsmere, ORF for Orford and FEL for Felixstowe. These have been further divided into Management Units and referred to numerically. The four primary Process Units are:

Process Unit	(BEN)	Lowestoft to Walberswick	7 Units
	(MIN)	Walberswick to Thorpeness	6 Units
	(ORF)	Thorpeness to Shingle Street	5 Units
	(FEL)	Shingle Street to Felixstowe Port	5 Units

3 STRATEGIC COASTAL DEFENCE OPTIONS

There are four generic strategic coastal defence options which are identified by MAFF and have been considered for each management unit. To ensure consistency with other SMP's being produced within the Anglian Region, a series of definitions have been agreed upon by the Anglian Coastal Authorities Group (ACAG). These are as follows:

(I) Do-nothing - "carry out no coastal defence activity except for safety measures";

(ii) Hold the existing line - "By intervention, hold the existing defence where it is";

(iii) Advance the existing line - "By intervention to move the existing defence seaward";

(iv) Retreat the existing line - "By intervention to move the existing defence landward".

In the case of Sub Cell 3c, it is more often than not the case that where the adopted policy is to "retreat the existing line" the shoreline will already be undergoing a naturally occurring rate of retreat and will not involve sudden or accelerated retreat or set back.

It should be noted that none of the above four options specifically mention monitoring, which is not categorised as coastal defence and should be carried out under all circumstances.

4 MANAGEMENT POLICY

Section 4 of this document contains the developed policy for the management of the sub-cell 3c shoreline. This assessment and development of the management strategy for each of the Process Units and Management Units has been carried out in a number of stages which are described below.

The defence line is described in detail under each management unit. In general it is the line landward of which one would not wish the sea to penetrate.

4.1 Process Unit Statements

A series of Process Unit Statements for this subcell have been produced. These provide a summary of the coastal processes, the key strategic issues and objectives for the Area, and the defence policy resulting from the assessment of the individual Management Units to meet both the objectives and natural process needs. Appended to these are the statements for each individual Management Unit, identifying how and why particular defence policies have been developed.

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Shoreline Management Plan
Subcell 3c
Lowestoft to Harwich

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Process Units and Management Units

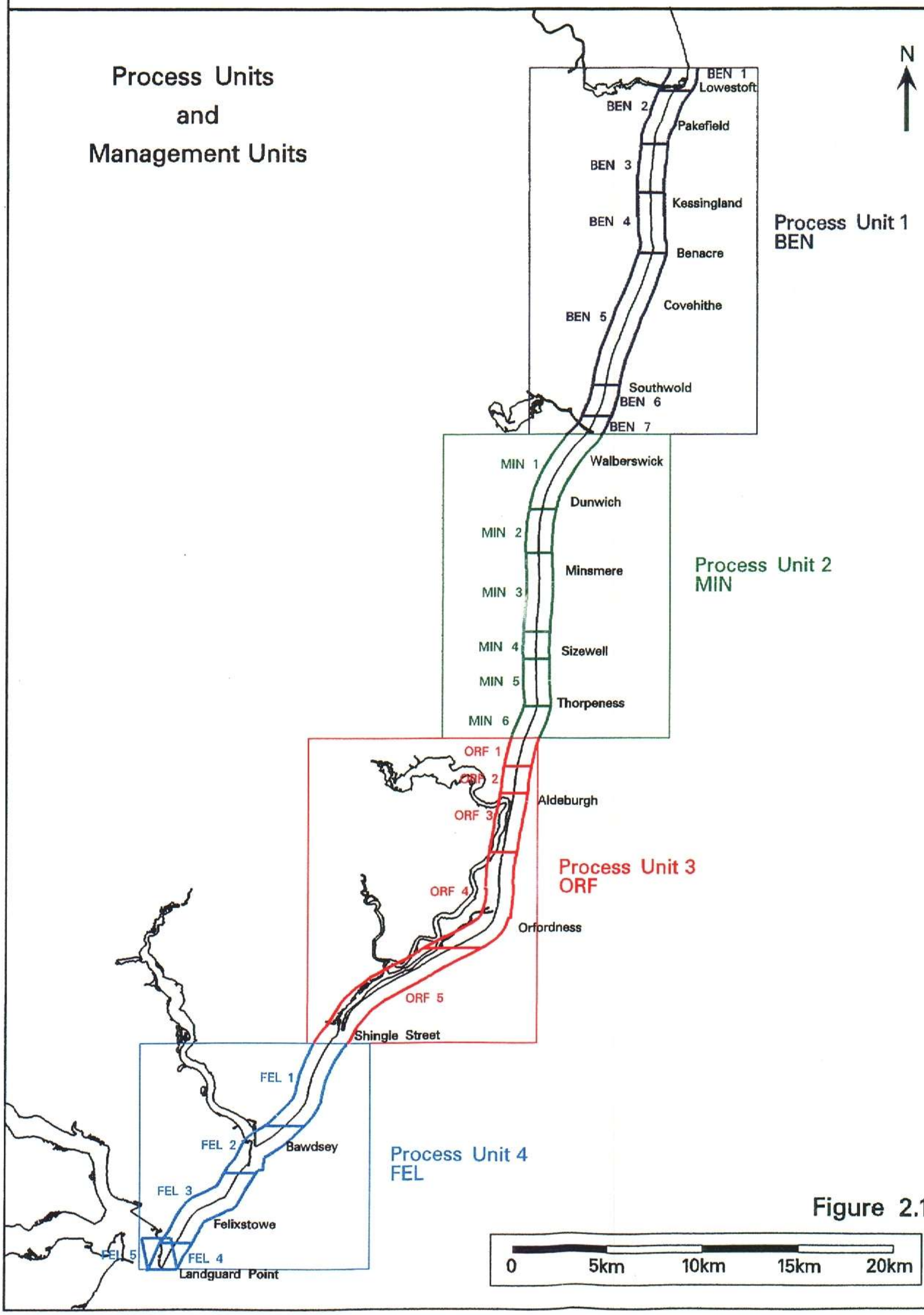

Figure 2.1

Figure 2.1 - Management Framework for Subcell 3c

By adopting this framework, the selection of a strategic defence option for the smaller scale Management Unit takes into account the wider physical hydrodynamics operating on a regional scale, along with overall objectives which are pertinent to the Area. This avoids the piecemeal approach to problem solving in the coastal zone which is one of the primary reasons for shoreline management planning. Using this approach, any defence policy which is proposed for a particular Management Unit is only acceptable if it conforms to the overall Process Unit Policy.

4.2 Assessment of The Issues

Each Process Unit is divided into individual Management Units, for which statements have been prepared, leading from the issues through to the developed policy and recommendations for its implementation.

It is not intended for these statements to contain detailed descriptions of the issues, the statements simply provide a brief summary of the factors which are to be considered in the development of any policy. Any significant issues or objectives which arise from these, and which must be primary considerations in assessment of the policy, are identified. It is important to provide this synopsis of the issues for reference within this document, whilst avoiding detailed descriptions of each factor, which would result in overly long statements and detract from the main elements of this document, ie the developed policy. A more detailed description of the various issues may be found in the stage 1 documentation if required and appropriate sections are referenced accordingly for ease of identification (eg Vol. 2 - Sec. 1).

The issues are described under five main sub-headings;

- Coastal Processes, a summary of the physical nature of the unit and the natural processes occurring within it;
- Coastal Defences, a description of the built or natural defences within the unit;
- Land Use and the Human and Built Environment, an outline of the areas and activities of human interest which may affect, or be affected by, the strategy for the unit;
- The Natural Environment, referral to the conservation interests that exist within the unit;
- Valuation of Land at Risk, the area that would be affected by predicted natural coastline change within 75 years and an assessment of the ability to economically justify providing defence to the unit.

4.3 Impact Matrices

One of the main objectives of the SMP is to assess a range of strategic coastal defence options and determine a preferred approach for each Management Unit. Each option needs to be considered in relation to its impacts, both positive and

negative, upon the various factors which are influenced by, or influential upon, the condition of the coastline.

Each strategic coastal defence option has been reviewed on the basis of its compatibility with natural processes, the implications for the human environment, natural environmental acceptability, technical soundness and sustainability, economic viability and its wider impacts. The impact matrices provide a summary of these factors and impacts.

An important aspect of the impact matrices is that they do not directly appraise the options in monetary terms. They do however make a preliminary economic evaluation of each option, enabling intangible items to be given equal consideration to those that are quantifiable.

4.4 Strategy Assessment

Having established the issues and reviewed the general suitability of the generic options through the impact matrices, a more detailed assessment has been undertaken of those defence options considered most appropriate to meet the objectives and fulfill the overall strategic requirements for the Management Unit. Details are provided on the suitability of these options with reference to the natural processes, the issues and objectives, together with comment upon the sustainability of the option where appropriate.

Based on this assessment a recommendation is made on the preferred strategic coastal defence option and confirmation of its compliance with the overall requirements for the Process Unit. The preferred option is also considered with regard to its compliance with the primary objectives of the SMP.

It is not the intention to produce here specific details of the nature of any works. The programming of works and the nature of these works will be developed by each Operating Authority based upon this SMP and the strategies proposed herein.

Finally, monitoring requirements have been established. General monitoring which is common to the whole sub-cell is proposed in Section 5 of this document. Therefore only monitoring requirements that are specific to any individual Management Unit because of its particular nature, are attached within these statements.

5 COST BENEFIT ANALYSIS

In order to fully appraise the viability of a strategic coastal defence option its cost effectiveness must be considered. This involves a comparison of the cost of implementing an option with the damage or loss it is expected to prevent or delay. The present MAFF Shoreline Management Plan guidelines (June 1995) indicate that an exhaustive cost benefit appraisal is not required.

The approximate 'cost' of an option can be readily estimated as previous experience will indicate the financial implications of various coast protection and flood defence schemes. The 'benefit', ie. the value of that which an option will prevent, is however less straightforward to calculate. In coast protection terms the benefit is the value of the land which is protected from erosion during the life of

the scheme. For the SMP the period of consideration is 75 years and it is over this period that erosion has been projected. This gives us a predicted coastline position for 75 years time. All land seaward of this position is at risk in the life of the Plan and will 'benefit' from schemes to reduce erosion. For low lying areas, where flood risk is the prime cause for concern, and in the absence of more detailed topographical data, the line is based upon the 5m topographic contour.

The area of land at risk within each management unit has been calculated, using a Geographic Information System. This was used to create a shape from the present and predicted coastline positions and the unit boundaries, the area of which was the land at risk. This process was also run to gain areas for each land use as identified on the management unit maps. This resulted in an area of land at risk for each land use in each unit. Approximate land values were then gained from the Suffolk County Valuation Office for each land use within each unit, with the exception of residential areas whose value has been derived from Council Tax bands. From here it was simply a case of generating values for each land use, which were then combined to give a total 'current value' of the land at risk in each management unit.

These calculations give the current value of the benefit of a coast protection scheme. In order to be able to correctly compare costs and benefits the current value must be 'discounted'. Discounting is a process which builds into the land value an allowance for reduction in value as an area becomes increasingly threatened by erosion. The reduction applied is set at 6% per annum, and thus the discount becomes greater further from the coast, as this land has a greater period over which values will diminish. In order to calculate the discounted benefit the current value was divided into 5 yearly bands each of which had a predetermined discount applied to it. The resulting 15 figures were then summed to give the discounted 'present value' which is the figure used in comparisons to scheme costs.

The net present value can then be compared to the estimated cost of implementing an option and its cost effectiveness determined. If at this stage it is not clear whether the benefit is positive or negative a more detailed analysis can be used in later stages of the plan to take into account other indirect benefits of the option. In flood risk areas the benefits are generated from average flood damage figures as recommended by MAFF (from the Yellow Manual and FLAIR 1990), for the various land use types. As flooding could happen in year one, no discount is applied to the current value for flood risk areas.

6 MAPS

6.1 Land Use

Maps have been produced for each Management Unit, principally to show the effects of the recommended policy. However, to enable the implications for the implementation of that policy and the factors dictating the choice of the preferred policy to be clearly seen, the land use has been added to these maps.

The SMP is not a definitive document for land use planning and, whilst every effort has been made to accurately represent the land use, the maps should be viewed in this respect only as a guide used for defence strategy development.

The land use is broken down into ten main classifications. These are generally self-explanatory, although some clarification is useful.

Within agriculture is included all land and buildings under agricultural use. Public amenities includes that part of the infrastructure for public use. Land uses within this class include schools, libraries, hospitals, churches, cemeteries and car parks. Tourism land use includes areas of both tourist accommodation and tourist attractions. Residential includes not only housing but also the privately owned land associated with the housing and other privately owned land such as allotments. The conservation class covers designated sites of nature conservation.

6.2 The Strategy Line

The red line on the maps (within the full SMP Document only) indicates the line that would be likely to result from the implementation of this strategy. This strategy line is shown as either a solid line or as a dotted line. The solid line represents the seaward position of a defended area where a policy to "hold or advance the existing line", through intervention, is currently proposed, whilst the dotted line indicates the position of the coastline where realignment is to be encouraged or allowed to occur. A dotted line is used to indicate a lesser degree of confidence in predicting its position.

In developing a coastal defence policy it is important to identify what is being defended rather than how it will be achieved. It is important that this principle is recognised. The line shown on the maps is not necessarily the line of the defence structures themselves nor is it necessarily the water line. The latter of these two positions may vary considerably depending upon the form of defence and, indeed may not be static, eg in the case of soft defence. In each case the definition of the line will be given in the Strategy Assessment for each Management Unit.

6.3 Monitoring Positions

Existing and proposed beach monitoring profile positions are shown on each map.