

## SECTION 14.0

### MANAGEMENT UNIT 9: WITHERNSEA

#### 14.1 Summary Information

##### 14.1.1 Location

Located on the open coast due east of Hull, Management Unit 9 extends along 2.3km of developed frontage comprising residential, commercial and recreational areas of Withernsea. The limits of the unit are defined by urban-rural land use change.

##### 14.1.2 Coastal Processes

The mean high water mark along the majority of the Management Unit has been artificially fixed for the past 120 years following the construction of a promenade and a groyne field. The low water mark is, however, moving landward. The stability of the foreshore is dependent on the effectiveness with which material is trapped between the groynes. Drift along the frontage is in a southerly direction.

The Withernsea defences form an artificial hard point which governs the evolution (in terms of the plan shape and rates of retreat) of Management Units 8 and 10.

##### 14.1.3 Coastal Defences

The majority of the Withernsea frontage is provided coast protection in the form of concrete seawalls and two rock revetments. The North Cliff concrete revetment is classified as a Class 4 structure (significant works required to ensure its structural integrity).

The centre section of the Withernsea frontage is provided with coast protection in the form of concrete seawalls and rock armour revetment. At the north and south ends protection is afforded by concrete revetments with the South Cliff revetment classified as a class 4 structure (significant works required to ensure its structural integrity). The whole of the defended frontage benefits from a groyne field.

There is no risk of tidal inundation from the frontage of Management Unit 9, however, flooding in Management Unit 14 may affect low lying agricultural land immediately landward of Withernsea.

##### 14.1.4 Land-Use, Human and Built Environment

Part of the land use in Management Unit 9 comprises a high density urban area of residential properties and commercial development. There are caravan parks between Waxholme and Owthorne and at South Cliff, and a golf course at South Withernsea. The remaining land within the Unit is either in agricultural use or is open land.

As a popular holiday destination, Withernsea has a wide variety of both land and sea-based recreational activities including sailing, sailboarding, water-skiing, beach uses and bathing. There is an EC designated bathing beach in the unit. The beach is also used to launch fishing

boats and there is an RNLI lifeboat station. There is a Yorkshire Water combined sewer outfall at Withernsea.

#### **14.1.5 Natural Environment**

There is a sandy foreshore in the Management Unit which is artificially retained by groynes. Although there are no areas designated as sites of nature conservation significance, the frontage is noted as a key location of marine biological importance due to littoral fauna and flora.

#### **14.1.6 Policies**

The policies of the former Holderness Borough Council and Humberside County Council continue to apply to Withernsea. These will be replaced in due course by new policies of the forthcoming development plans to be prepared by East Riding of Yorkshire Council. Withernsea is also within the area covered by the policies of the Local Environment Agency Plan.

#### **14.1.7 Issues**

Withernsea's local economy is dependent on the tourism and recreation industry. There is therefore a need to continue to provide coastal defence, however, there is concern with regard to increased rates of downdrift erosion resulting from the presence of these coastal defences.

Within Management Unit 9, many of the wide range of recreational activities depend on access to and the quality of the coastline. Access to the sea for the lifeboat and for fishing vessels also needs to be maintained.

Yorkshire Water's coastal discharge point must not be adversely affected as this could lead to a deterioration in the quality of the EC designated bathing beach.

Coastal defence policies should not lead to damage to the nature conservation and fisheries interests of the littoral zone.

#### **14.1.8 Specific Objectives**

Building on the objectives discussed in Section 4.4 of this document, the following unit specific objectives are identified for Management Unit 9:-

- To provide an appropriate level of protection to the dense urban areas, including tourism and recreation facilities on which the local economy depends
- To ensure that sediment movement along the frontage is not restricted beyond that required to sustain an adequate level of protection
- To maintain access for the RNLI and for fishing vessels
- To ensure that coastal defence policies do not detrimentally affect water quality and/or quality of the EC designated bathing beach

- To protect nature conservation interests of the littoral zone.

## 14.2 Results of Economic Appraisal

The preliminary economic appraisal carried out in order to establish the economic viability of carrying out coast protection works to the frontage of Management Unit 9 demonstrated that the assets at risk from erosion include various residential and commercial assets and recreational facilities. The potential economic damages which would be incurred if the existing coast protection works were to fail exceed the likely costs of the works required to hold the current line of defence along the existing protected frontage.

The do nothing option cannot therefore be justified in economic terms as there is adequate economic justification for adopting the hold the line option along the frontage which is currently protected.

The economic analysis carried out demonstrated that there is insufficient economic benefit, in coast protection terms, to justify active intervention to advance the current line of defence. This assessment has been carried out based on the assumption that advancing the line would be achieved via the construction of an offshore breakwater.

The analysis carried out to establish the economic viability of adopting the retreat the line option has demonstrated that significant economic losses would be experienced if such a policy were to be adopted at the present time. The retreat the line option does not, therefore, currently represent an economically viable option.

The economic analysis carried out for the unit is shown in Appendix I. Further work to investigate the economic viability of providing coast protection to assets which are currently unprotected, would form part of investigative work as a part of a Strategy Study for the Management Unit.

## 14.3 Discussion of Policy Options

The objectives are set out in full in Section 4.0 and the evaluation process is described in Section 5.0.

### 14.3.1 Do Nothing

The do nothing option would be compatible with the preferred options for adjacent units. It would also be sustainable. Do nothing does not, however, meet the objective of providing continued protection to the urban area of Withernsea, and it does not meet all of the environmental objectives. For example, the quality of the foreshore and marine environment would be threatened, in due course, by deteriorating or dilapidated structures.

For these latter reasons, the do nothing option is rejected.

### 14.3.2 Retreat the Line

There is uncertainty over the likely effects of the retreat the line in Management Unit 9 and it is not clear therefore whether or not the objectives in respect of natural process or human and built environment would be met. Should this option be pursued, further work would be

needed. However, it should also be noted that the option is not economically viable and it does not meet the unit-specific objective of providing protection to the urban area.

The retreat the line option is therefore rejected.

### 14.3.3 Hold the Line

The hold the line option meets or partly meets many of the management objectives for this unit, including providing continued protection to the urban area. It is technically and economically viable, and compatible with the preferred options for adjacent units. It meets the objective of compatibility with the processes operating in so far as the line is already held at this point, but it is not compatible with the general tendency of the Holderness coast to erode. Similarly, as the frontage is defended, sediment movement along the coast is inevitably interrupted. As a result of these factors, it is questionable whether the option is sustainable.

The hold the line option is potentially viable for the unit

### 14.3.4 Advance the Line

Although protection would be afforded to the urban area, the advance the line option is not economically viable and it is not sustainable. Further, the option is not compatible with the processes operating within the cell and it does not meet the natural environment objective.

The advance the line option is therefore rejected.

## 14.4 Preferred Option

**The preferred strategic coastal defence option for Management Unit 9 is to hold the line along the currently protected frontage and do nothing along the remainder of the Unit except to prevent outflanking.**

**The hold the line option is potentially viable along the currently protected frontage for the current life of the SMP (50 years). It does not, however, appear to be an option which is sustainable and it will therefore need to be subject to periodic review as to its continuing suitability. It is recognised that it is currently not economically viable to hold the line immediately south of the existing defences. Continued monitoring of cliff retreat will, however, indicate if and when intervention is necessary to provide protection to cliff top development immediately downdrift of the existing defences.**

**A Strategy Study for Management Unit 9 should be undertaken on the basis of the Preferred option given above before the next SMP review.**

**Details of capital work schemes which are anticipated to be carried out within the next five years, in order to Hold the Line, are given in Table 2.0, Section 24.3.**

#### **14.4.1 Mitigation and Monitoring Requirements**

Continued monitoring of cliff retreat will be essential if the potential effects of the defences are to be properly understood, and if future reviews of the SMP are to be adequately informed. Monitoring of beach levels along the Withernsea frontage and adjacent areas may also be useful.

The effective implementation of the preferred option would benefit if it received the support of the planning system in limiting future development.

See also Table 3.0, Monitoring Recommendations, Section 25.3.

**MANAGEMENT UNIT 9: WITHERNSEA**

STRATEGIC OPTION	GENERAL MANAGEMENT OBJECTIVES							UNIT SPECIFIC OBJECTIVES					
	Common to all Management Units							Defined Below					
	Technically Realistic	Economically Viable	Environmentally Acceptable: Human & Built Environment (See Supporting Matrix Below)	Environmentally Acceptable: Natural Environment (See Supporting Matrix Below)	Compatibility with Processes at Work within Sediment Cell	Compatibility with Preferred Options for Adjacent Management Units	Overall Sustainability	Protect Urban Area and Economic Activities	Maintain Sediment Movement (Where Practicable)	Maintain Access for RNLI and Fishing Activities	Maintain Quality of EC Bathing Beach	Maintain Nature Conservation Interests	(Not Used)
Do Nothing	✓	✗	✗	✗	✓	✓	✗	✗	✓	✗	✗	?	
Retreat <sup>(1)</sup>	✗	✗	✓	✗	?	✓	✗	✗	?	✓	✓	?	
Hold the Line	✓	✓	✓	✓	✗	✓	✗	✓	✗	✓	✓	?	
Advance <sup>(2)</sup>	✓	✗	✓	✗	✗	✓	✗	✓	✗	✓	✓	✗	

**Notes:**

- ✓ Yes - complies with management objective
- ✗ No - conflicts with management objective
- ✗✓ Meets the objectives in some respects but not in others
- ? Insufficient data to assess situation
- <sup>1)</sup> Defined as: active intervention to retreat from existing coastline (i.e. other than by natural erosion)
- <sup>2)</sup> Defined as: active intervention to advance from existing coastline (i.e. other than by natural accretion)
- <sup>3)</sup> Other than tourism, recreation and agriculture
- <sup>4)</sup> Least cost option (see Section 4.2.2)
- N/A Not applicable

**SUPPORTING MATRIX**

STRATEGIC OPTION	MANAGEMENT OBJECTIVES FOR THE STUDY COASTLINE													
	Land Use and the Human and Built Environment								Natural Environment					
	Coastal Defence	Agriculture	Fisheries	Tourism and Recreation	Archaeology	Military Use	Offshore Activity	Industry/Economic Activity <sup>(3)</sup>	Navigation	Biology	Geology	Natural Processes	Landscape	Water Quality
Do Nothing	✗	✗	✗	✗	?	N/A	✓	✗	✗	?	N/A	✓	✗	✗
Retreat (1)	✗	✓	✗	✓	✗	?	N/A	✓	?	?	N/A	✗	✗	✓
Hold the Line	✓	✓	✓	✓	?	N/A	✓	✓	✓	?	N/A	✗	✓	✓
Advance (2)	✓	✓	✗	✗	?	N/A	✓	✓	✗	✗	N/A	✗	✗	✓

**NB. Reference should be made to Section 5.0 which explains in detail the procedures used for completing the matrices**