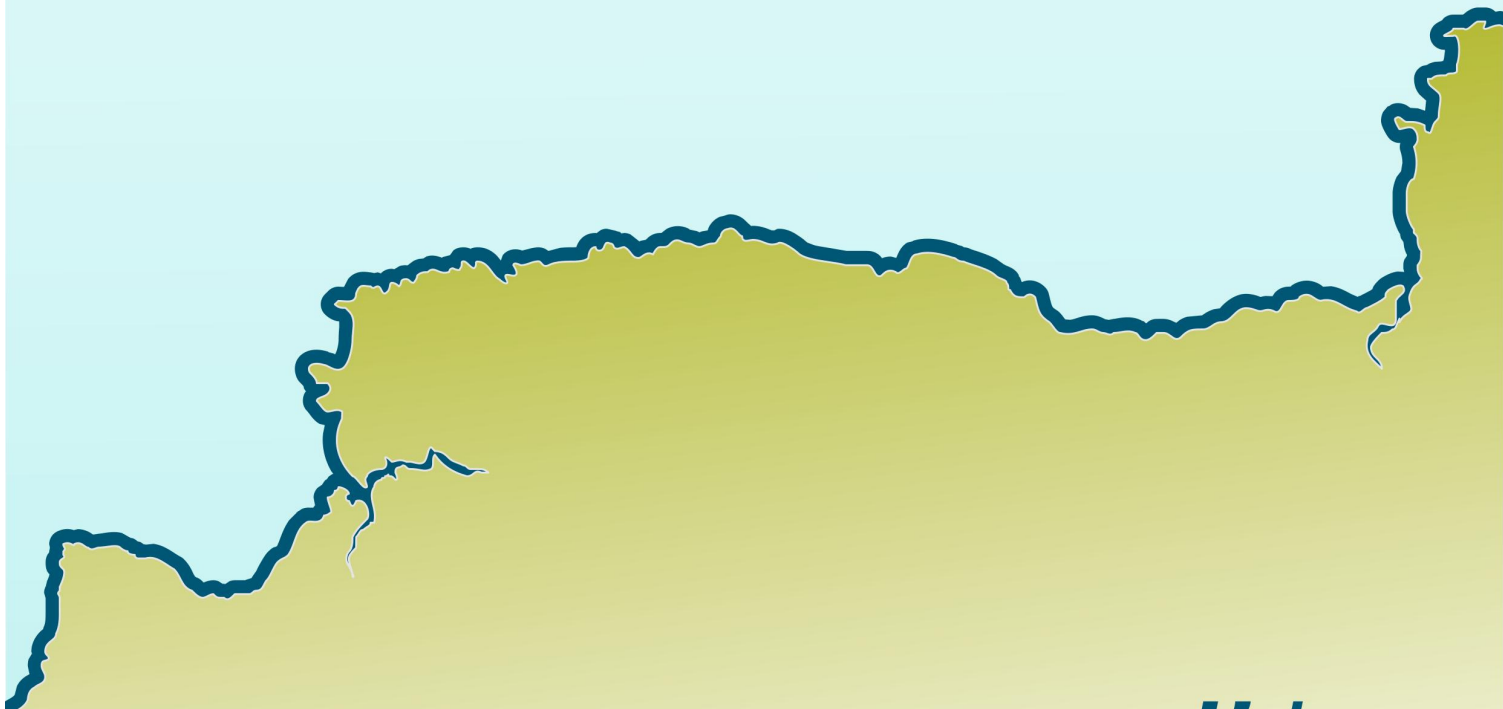


**North Devon and Somerset Coastal  
Advisory Group (NDASCAG)**

**Shoreline Management Plan Review (SMP2)  
Hartland Point to Anchor Head**

**Appendix H – Economic Appraisal and Sensitivity Testing**

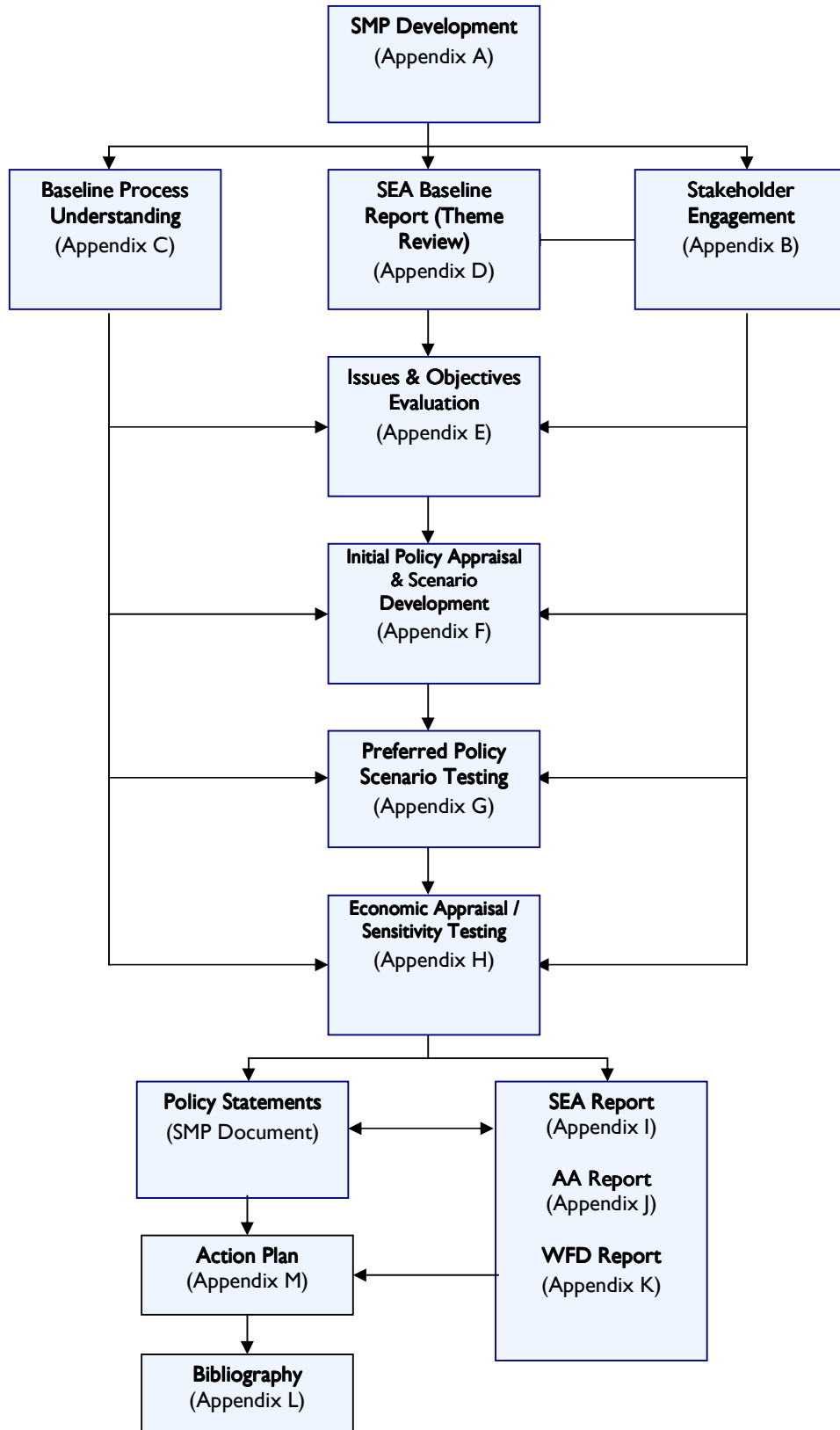


## The Supporting Appendices

These appendices and the accompanying documents provide all of the information required to support the Shoreline Management 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. The appendices are:

A: SMP Development	This reports the history of development of the SMP, describing more fully the plan and policy decision-making process.
B: Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process.
C: Baseline Process Understanding	Includes baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments.
D: SEA Environmental Baseline Report (Theme Review)	This report identifies and evaluates the environmental features (human, natural, historical and landscape).
E: Issues & Objectives Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance.
F: Initial Policy Appraisal & Scenario Development	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing. Also presents the appraisal of impacts upon shoreline evolution and the appraisal of objective achievement.
G: Preferred Policy 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: Strategic Environmental Assessment (SEA) Report	Presents the various items undertaken in developing the Plan that specifically relate to the requirements of the EU Council Directive 2001/42/EC (the Strategic Environmental Assessment Directive), such that all of this information is readily accessible in one document.
J: Appropriate Assessment Report	Presents the Appropriate Assessment of SMP policies upon European designated sites (SPAs and SACs) as well as Ramsar sites, where policies might have a likely significant effect upon these sites. This is carried out in accordance with the Conservation (Natural Habitats, &c.) Regulations 1994 (the Habitats Regulations).
K: Water Framework Development Report	Presents assessment of potential impacts of SMP policies upon coastal and estuarine water bodies, in accordance with the requirements of EU Council Directive 2000/60/EC (the Water Framework Directive).
L: Metadatabase and Bibliographic database	All supporting information used to develop the SMP is referenced for future examination and retrieval.
M: Action Plan Summary Table	Presents the Action Plan items included in Section 6 of the main SMP document (The Plan) in tabular format for ease of monitoring and reporting action plan progress.

Within each appendix cross-referencing highlights the documents where related appraisals are presented. The broad relationships between the appendices are illustrated below.



## Table of Contents

<b>H.1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
<b>H.2</b>	<b>USE OF EXISTING INFORMATION</b> .....	<b>2</b>
<b>H.3</b>	<b>GENERATION OF NEW DATA</b> .....	<b>3</b>
H.3.1	Determining Damages and Benefits.....	3
H.3.2	Comparison of Costs and Benefits.....	5
H.3.3	Economic Uncertainties.....	5
<b>H.4</b>	<b>ECONOMIC APPRAISAL SUMMARY TABLE</b> .....	<b>8</b>
<b>H.5</b>	<b>SENSITIVITY TESTING</b> .....	<b>43</b>
H.5.1	Uncertainty Identification Table.....	44
<b>ANNEX H.1 – SUPPORTING ECONOMIC APPRAISAL DATA – DAMAGES/BENEFITS</b> .....		<b>45</b>
H.1.1	Summary of No Active Intervention Erosion Losses.....	45
H.1.2	Summary of Preferred Plan Erosion Losses (Damages Avoided).....	51
H.1.3	Summary of No Active Intervention Flooding Assets at Risk.....	53
<b>ANNEX H.2 – SUPPORTING ECONOMIC APPRAISAL DATA FOR SMP COSTS</b> .....		<b>61</b>
<b>ANNEX H.3 – SUPPORTING INFORMATION FOR SENSITIVITY TESTING</b> .....		<b>71</b>

## H.1 Introduction

A review of economic viability has been carried out for the Preferred Plan and its associated policies.

It should be noted that this review is not to establish the economic justification for a scheme as defined by Defra's Flood and Coastal Defence Project Appraisal Guidance Note 3: Economic Appraisal (FCDPAG3). The review makes a broad assessment of the economic robustness of the preferred policies. The economic review therefore determines whether or not each policy is:

- Clearly economically viable;
- Clearly not economically viable; or
- Potentially economically viable (and therefore may be in need of more detailed assessment at a later date, e.g. as part of a strategic plan, although some commentary on this is provided within this report).

It should be recognised that the justification for a particular policy is not necessarily dependant on economic viability based on the benefit-cost ratio alone, as impacts on other benefits may be considered more important (e.g. holding existing defences to sustain a designated habitat). At the broad scale level of analysis undertaken at the SMP stage not all benefits are able to be evaluated in monetary terms. Although these 'intangible' benefits have not been valued in monetary terms, they are taken into account during decision-making by considering whether they are likely to be of sufficient importance to justify a scheme.

The following sections detail how the economic assessment has been undertaken. This is followed by a series of economic statements for each policy unit, and spreadsheets providing the numerical analysis performed as part of the SMP.

## H.2 Use of Existing Information

The following datasets were consulted to obtain information for the economic review:

- National Property Dataset (second edition, 2005)– for property locations and property prices;
- RICS Rural Land Market Survey (H1 2009) – for agricultural land values;
- SMP Guidance (2006) and Environment Agency Unit Cost Manual (2007) – for defence costs;
- Appendix C (Baseline Processes Understanding) – for details of erosion rates; and,
- Environment Agency Flood Zone 2 – for flood mapping extents to determine properties and agricultural land areas with an annual probability of flooding of between 0.5% and 0.1%.

A number of studies and scheme assessments have been developed for this coast over recent years. These contain detailed information on assets, benefits and management costs. Where this is directly applicable, such information has been considered and included as appropriate.

However, the justifications in these previous studies are only applicable if all other aspects are the same, i.e:

- the timeframe: many studies in the past have looked at economics over only 50 years and use different discount factors to those now required by Treasury;
- the area determined to be at risk: the SMP may have a modified assessment of the area that could be affected by erosion or flooding. For example the SMP uses the 1 in 1000 still water levels to determine flood risk, rather than a 1 in 200 year event as is commonly used for detailed studies at scheme level studies;
- sea level rise assumptions are the same; and,
- the preferred option matches that from the previous study: the SMP may be advocating a change from previous policy or management practice.

Where the above conditions are not realised, some of the raw data from the past studies has still been used, where it is readily available.

## H.3 Generation of New Data

As there is very limited existing information that can be used directly to confirm robustness of the SMP policy, new economic data has been derived through application of a GIS (ESRI ArcView) and Defra FCDPAG economic calculation sheets. This 'Broad-scale Economic Review', described below, uses nationally available information on property locations and values, and the risk maps developed through the assessment of shoreline interactions and responses (Appendix C).

### H.3.1 Determining Damages and Benefits

The benefits are the damages avoided or delayed by the Preferred Plan, i.e. the difference in losses between implementing the Preferred Plan and the No Active Intervention (NAI) scenario. These have been calculated for each epoch (i.e. 0-20, 20-50 and 50-100 years).

Although policy appraisal has determined a 'zone' of likely future erosion, for the purposes of estimating possible benefits, only the most landward extent of the likely erosion (for each epoch) has been used in the present analysis. These lines have been mapped and overlain with the property location/value data to calculate potential economic losses and economic benefits for the NAI scenario and the Preferred Plan scenario. It should be noted that average erosion rates for each epoch are used in this analysis and as such, erosion losses calculated within the GIS are indicative and therefore should be viewed accordingly.

In areas where there is a flooding risk, no attempt has been made to undertake detailed flood risk modelling; rather areas identified as at flooding risk by the Environment Agency's flood mapping (Flood zone 2) have been used to identify assets potentially at risk (flood cells). The potential damages in these flood cells are simply taken as the summed capital value of all the 'at risk' assets. This is based on the assumption that under a NAI scenario flood defences would fail and all 'at risk' assets would be inundated and become uninhabitable. This is taken as an indicative capital value for the assets potentially protected by defence structures and is not representative of the likely damage value incurred in a flood event. Flood asset values have been calculated on a Policy Unit by Policy Unit basis, based on damages within Flood Cells. It should be noted that along a number of frontages, one or more flood cells extend over multiple policy units, in these cases, damages may be shown to be the same in adjacent Policy Units which extend over the same flood cell.

In calculating damages and benefits for the preferred scenario, no account has been taken of the potential for short-term accelerated or delayed losses compared to NAI, other than the total adjustment in shoreline position at the end of each epoch.

The SMP does not take account of standards of protection as it is only defence management policy that is being determined. Standards of protection relate to implementation of these policies, which is usually undertaken within more detailed strategic level studies.

#### H.3.1.1 Benefit values

For properties, losses and benefits have been calculated only on the basis of residential and commercial property values. Other assets, such as utilities, highways, and intangibles, such as recreation, and other impacts upon the local economy or environment, have not been valued or included. Exclusion of these factors will robustly confirm economic viability, as these would provide added value. Losses and benefits have been calculated using data from the GIS. This was populated with data from a National Property Dataset. The dataset is built from the Ordnance Survey Address Point dataset and the Valuation Office Focus database. Address Point identifies the location of all existing properties. The Focus database then identifies which are non-residential (i.e. commercial/industrial) and provides a rateable value from which an approximate capital value is obtained, by applying a conversion factor. A conversion factor of 13 is used to convert rateable values to capital values, based on the types of commercial property affected and the typical yield they provide (around 7.6% to 7.7%). The remaining properties are assumed to be residential and property valuations included in the National Property Dataset were used in the analysis.

Using the 20, 50 and 100 year erosion contours, the GIS has been used to identify assets at risk in each epoch, and this data has been used with Defra FCDPAG calculation sheets to calculate the Capital Value (CV) and discounted Present Value (PV).

For the flood risk areas, GIS has been used to simply sum the CV for all property assets within the flood area, using the property dataset.

### H.3.1.2 Generation of new defence cost information

Future coastal defence management approaches for each Policy Unit have been developed as part of the Preferred Plan. From this, the broad replacement and maintenance requirements for each epoch have been determined.

Where there is no existing information relating to future defence costs for an area, e.g. from a strategy plan or scheme design, costs have been generated using other nationally available information.

#### (a) Cost Rates

Replacement costs for general defence types have been taken from the revised Shoreline Management Plan Guidance<sup>1</sup>. This suggests average replacement costs for linear structures (e.g. revetments, seawalls) as £2.7million/km and costs for beach management schemes at £5.1million/km. Replacement costs for groynes, embankments and other “low cost” defence types are taken as £0.6million/km.

Maintenance costs have been taken from the Defra ‘National Appraisal of Defence Needs And Costs’ (NADNAC) study<sup>2</sup>. This used annual maintenance costs for linear structures and for groyne fields at £10,000/km, and for beach schemes £20,000/km.

In addition to this, cost rate information for other types of defence structures, such as flood walls within estuaries, has been derived from the Environment Agency’s Unit Cost Database 2007<sup>3</sup>.

#### (b) Cost Calculations

It has been assumed that the timing of full scheme reconstruction required (i.e. design life) is at least once every 100 years for linear defences, such as seawalls and revetments; every 50 years for beach schemes; and every 30 years for groynes and embankments. However, these periods may become more frequent for areas where erosion potential is high, e.g. on the outside of meanders and in confined channel locations.

Maintenance has been assumed to occur to the same level in every year throughout the life of the scheme. In reality, this will be less in the early years and will increase in later years of the scheme’s life. However, for the broad brush appraisal undertaken for the SMP this will make only a small difference to decisions as the majority of costs are associated with capital works.

Allowance has also been made for the increase in costs due to climate change impacts including sea level rise, based upon factors developed for the NADNAC study. This takes account of the need to make structures higher, deeper, and more resilient to increased exposure. The assumptions were: no cost increase for the 0-20 year epoch; costs factored up by 1.5 times present day rates for the 20-50 year epoch; and costs factored up by 2.0 times the present day rates for the 50-100 year epoch.

In accordance with the latest Defra and HM Treasury guidance, Optimism Bias (OB) was applied to all costs (at 60%) to reflect uncertainty in broad level analysis at the SMP scale.

### H.3.1.3 Methodology for calculating agricultural land prices

Agricultural land values were calculated from land prices obtained from RICS (2009)<sup>4</sup> which provides data for South-West England farmland prices for the first half of 2009. For each agricultural grade a land value (£ per ha) has been assigned according to Table I below.

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<sup>1</sup> Defra (2006) Flood and Coastal Defence Appraisal Guidance, FCDPAG3 Economic Appraisal, Supplementary Note to Operating Authorities – Climate Change Impacts, October 2006.

<sup>2</sup> Defra (2004) NADNAC National Appraisal of Defence Needs and Costs Study.

<sup>3</sup> Environment Agency (2007) Flood Risk Management Estimating Guide Unit Cost Database.

<sup>4</sup> RICS (2009). Rural Land Market Survey, H1 2009. July 2009:  
[http://www.rics.org/site/download\\_feed.aspx?fileID=3564&fileExtension=PDF](http://www.rics.org/site/download_feed.aspx?fileID=3564&fileExtension=PDF)



Average South West Arable Land Price (£/Ha)	Average South West Pasture Land Price (£/Ha)	Overall Average Land Price (£/Ha)
£12,973	£12,356	<b>£12,664.50</b>

*Table 1 Average farmland prices in South-West England paid for bare land in £ per Hectare in H1 2009<sup>5</sup>.*

In accordance with the guidance in the Defra (2008)<sup>5</sup>, in following Scenario 1 (*land is abandoned or no longer fit for agricultural use for the foreseeable future*), the values of land were reduced by £600/ha to remove the cost of subsidies. As such, the final land value to be assigned to the agricultural land values is:

$$\text{£12,664.50 per ha} - \text{£600 per ha} = \text{£12,064.50 per ha}$$

### H.3.2 Comparison of Costs and Benefits

As this review is not a full economic assessment, a formal benefit-cost assessment using benefit-cost ratios (BCR) has not been undertaken. However a benefit-cost ratio (BCR) has been included to help clarify and review the ‘robustness’ of the preferred plan.

In comparing likely benefits and likely costs for the policies for an individual location, over the full 100 year period, it is however still useful in some instances to be able to consider these in terms of Present Value (PV).

Present Value is the value of a stream of benefits or costs when discounted back to the present day. For this SMP, the discount factors used are the latest provided by Treasury for the assessment of public expenditure, i.e. 3.5% for years 0-30, 3.0% for years 31-75, and 2.5% thereafter.

For calculation of PV damages, the approximate timing of property losses has been determined using a GIS and corresponding discount factors applied accordingly. For calculation of PV costs for defence replacement, although the actual timing of works is uncertain, the residual life of defences was used to determine approximate timing of works, such that an appropriate discount value has been determined for the estimated costs. The year-on-year maintenance PV costs have been calculated using the total of the discount rates for that epoch.

The figures generated for this SMP are presented only in CV in Section H.4, reflecting the ‘broad-scale’ nature of the assessments undertaken. However, for further information, the PV of these figures is presented in Annex H.1 (for benefits/damages) and Annex H.2 (for costs).

### H.3.3 Economic Uncertainties

The economic appraisal has estimated the damages for the no active intervention options and the identified preferred management options. Benefits were then calculated for each preferred option (with NAI as the baseline) and compared with the costs of managing the ‘at risk’ assets in the particular cell. This results in a benefit-cost ratio which is reported in Economics Tables (**Section H.4**) and uncertainties addressed in the Uncertainties Tables (**Section H.5**). As discussed in **Section H.3.1**, the monetary damages primarily include residential and commercial property and agricultural land flood losses. The benefit-cost ratio therefore is not truly representative of the economic ‘worth’ of any particular option as it does not include those impacts that are more difficult to monetise (such as infrastructure, recreation, health effects, etc.). Some of these are described in the Preferred Policy Economic Tables (**Section H.4**) and addressed in more detail for the marginal units in the Uncertainties Tables (**Section H.5**). These are then brought together in the Preferred Policy Statements (**Section 5, Main SMP Document**).

The SMP looks over a timescale of 100 years and predictions are therefore inherently uncertain. As such, there are a number of uncertainties associated with economic ‘worth’ of the preferred plan policies in the

<sup>5</sup> Defra (2008). Flood and Coastal Defence Appraisal Guidance Economic Appraisal Supplementary Note to Operating Authorities: Valuation of Agricultural Land and Output for Appraisal Purposes, May 2008.

future. Key economic uncertainties are recognised here. However, many of these uncertainties should be addressed through regular updates of the SMP or when significant changes to input data become available.

#### H.3.3.1 Agricultural land

The area of land is measured from GIS and the value per acre is adjusted according to Defra guidance. Therefore, the uncertainty associated with damages to agricultural land should be LOW. Other uncertainties will be associated with GIS, flood risk maps, etc. used to determine when and which land will be written off, as well as changes in regional agricultural importance and associated land values in the future.

#### H.3.3.2 Residential properties

Data on properties at risk is based on GIS/property databases. Write-off values for properties from the National Property Database have been verified against average values. Therefore, uncertainty related to write-off damages for residential properties should be LOW. Other uncertainties will be associated with GIS, erosion rates, flood risk maps, etc. used to determine when and which residential properties will be written-off.

#### H.3.3.3 Commercial properties

Data on commercial properties has also been based on GIS/property datasets. It is known that the National Property Dataset (NPD) can introduce significant uncertainties for non-residential properties, with many properties not given a valuation and/or floor area. The economic appraisal does calculate valuations based on floor area where the NPD does not include specific valuations. This is based on a multiplier of 13 based on the yield of most properties. This helps to reduce the uncertainties although there are some commercial properties that still have no valuation (the majority of these have an X classification, which are often found to have low value). The overall level of uncertainty will vary by unit, but is likely to be LOW-MEDIUM. If there is a large number of X classified properties in any one unit, or other impacts that could not be valued in monetary terms then the uncertainty could be HIGH. Other uncertainties will be associated with GIS, erosion rates, flood risk maps, etc. used to determine when and which residential properties will be written-off.

#### H.3.3.4 Transport impacts

Costs of relocating/rebuilding roads and railways affected have not been included in the economic damages as there is insufficient data with which to base any monetary valuations on. Further investigation may be needed to accurately estimate the costs, where these impacts are significant to the overall damages. For example, along several lengths of the SMP frontage the only asset of value is critical highway or railway infrastructure, but with no data available to value these assets in monetary terms, it would appear on face value to be of 'no benefit' to defend those areas. Transport impacts have, however, been considered (in qualitative terms) as part of the approach to determining the preferred plan. Overall, therefore, the uncertainty should be LOW-MEDIUM (depending upon the extent of issues covered in the qualitative discussion).

#### H.3.3.5 Environmental impacts

The economic analysis has not valued in monetary terms any impacts on environmental sites (designated or non-designated). The economic appraisal therefore excludes environmental issues such as impacts on habitats, water quality (or quantity, through loss of abstractions), historic environment (although impacts on buildings may be partly captured under properties), landscape impacts, etc. Environmental issues have been considered (in qualitative terms) as part of the approach to determining the preferred plan. Overall, therefore, the uncertainty should be LOW-MEDIUM (depending upon the extent of issues covered in the qualitative discussion).

#### H.3.3.6 Recreational impacts

Within some policy units there may be impacts on recreation and tourism, but these are not quantified and have not been included in the economic damages. The impact of exclusion of recreational/tourism damages will vary by policy unit but could be HIGH in areas of regional importance for recreation and tourism. Further investigation of the likely damages under NAI needs to be investigated in those units with recreational and tourism assets that could attract visitors/users from outside the immediate area (i.e. recreation assets that are used for more than short-cuts and/or dog walking). Such investigation should also consider the relative benefits to recreation/tourism in areas where policy can be achieved incorporating retention of, for example, amenity beach.

### H.3.3.7 Community/social impacts

Community impacts are likely to be greatest where there is write-off of residential and/or commercial properties. However, smaller settlements could have important social impacts reflecting the interactions between different community groups as well as between individuals. These cannot be valued in monetary terms but are taken into account during identification of the preferred plan. Some of the descriptions of the impacts refer to the integrity of settlements. The implications of lost integrity (including impacts on transport infrastructure as well as loss of properties and businesses) are included during assessment of whether the benefit-cost ratio of the preferred plan is likely to exceed one. In units where the integrity of the community could be affected, the uncertainty introduced in terms of the benefit-cost ratio could be MEDIUM-HIGH (depending on the actual impacts on the community and the proportion of the community affected). For erosion units, consideration needs to be given to blight affecting more than just those properties that are directly affected. Loss of other assets (e.g. the beach, access to the beach, recreational assets) could have significant effects on the whole community (even a whole parish) and could introduce MEDIUM-HIGH uncertainty.

## H.4 Economic Appraisal Summary Table

The table below provides a summary of the economic review of the preferred plan for each Policy Unit. It outlines any information used in this review, including benefits and costs, together with a statement on economic viability. Indicative managed realignment costs are based on the capital value and maintenance costs of a set back embankment. Preferred plan damages only relate to erosion losses avoided and not protection against flood risk to a given standard of protection as this data is not available (refer also to **Annex H.1.2**). Note: An allowance should be made for errors of approximately +/- £1m in each epoch, due to an error allowance of +/- 250m in the measurement of defence lengths for each unit.

It should be noted, that for the Parrett Estuary (units 7d39 to 7d41), economic data is presented from the recently completed Parrett Estuary Flood Risk Management Strategy, as economics in this area have been considered in much greater detail as part of that study.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c01 – Landing Beach	HTL	HTL	HTL	£0.00	£3.60	HTL aims to continue to protect the only access to Lundy for both the small number of those that reside there as well as the many tourists who visit Lundy each year, contributing to the economy of the wider area.  Benefits do not take account of the tourism value of Lundy, which are likely to be significant.	Value of tourism assets needs to be investigated further.  Future defence provision will also likely, in part, depend on availability of alternative (non-flood and coastal defence budget) funds to carry out works.	BCR = 0.00  SMP policy is <i>potentially economically viable</i> when take account of likely significant amenity value of the frontage. This requires further investigation.
7c02 – Lundy (except Landing Beach)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
<b>7c03 – Hartland Point to Clovelly</b>	NAI	NAI	NAI	£0.32	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	No specific uncertainties that would affect economic viability.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
<b>7c04 – Clovelly</b>	HTL	HTL	HTL	£0.56	£1.25	HTL aims to continue to protect the village of Clovelly for both those that reside and work there as well as the many tourists who visit Clovelly each year, contributing to the economy of the wider area.  Benefits do not take account of the tourism value of Clovelly, which are likely to be significant.	Value of tourism assets needs to be investigated further.  Future defence provision will also likely, in part, depend on availability of alternative (non-flood and coastal defence budget) funds from the private landowner (who has expressed a desire to build a new breakwater at Clovelly) to carry out works.	BCR = 0.45  SMP policy is <i>potentially economically viable</i> when take account of likely significant amenity value of the frontage and possibility of co-funding with the landowner. This requires further investigation.
<b>7c05 – Clovelly to Westward Ho! (Seafield House)</b>	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.  Provision included in the Plan to allow private defence measures at Bucks Mills if non-public funds available.	No specific uncertainties that would affect economic viability.  Potential for future defence at Bucks Mills will be dependent on availability of non-flood and coastal defence budget funds.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c06 – Westward Ho!	HTL	HTL	HTL	£1.85	£4.59	The economics here do not account for the significant amenity value of the Westward Ho! frontage.	Value of tourism assets needs to be investigated further.	BCR = 0.40  SMP policy is <i>potentially economically viable</i> when take account of likely significant amenity value of the frontage. This requires further investigation.
7c07 – Northam Burrows	MR	MR	MR	£1.86	£4.92	<p>The purpose of the MR policy is to control the roll back of the Pebble Ridge and reduce the risk of flooding and erosion to both Westward Ho! at the southern end of Northam Burrows and the extensive landfill at the northern end of Northam Burrows.</p> <p>The economics here do not account for the significant amenity or environmental value of the frontage.</p> <p>Nor do the economics take account of the benefit of not having to remove all of the landfill material, which Devon County Council recently estimated would cost in excess of £100m.</p>	<p>Value of amenity and environmental assets needs to be investigated further.</p> <p>Benefit of protecting the landfill (i.e. not incurring cost of removing it) also needs to be included in the economics.</p> <p>The economics for this unit also need to be considered in the whole with the adjacent units, the management of which are all significantly inter-related.</p>	BCR = 0.38  SMP policy is <i>potentially economically viable</i> when take account of likely significant amenity value of the frontage, the benefit of not having to remove the landfill material and the costs and benefits of managing this unit in combination with the adjacent units. This requires further investigation.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c08 – Skern Salt marsh to Appledore (west)	HTL	HTL	HTL	£1.62	£6.88	<p>The purpose of the HTL policy is to provide a control to reduce the risk of Taw/Torridge channel shifting to flow out through Northam Burrows in the future. This will also prevent landfill material buried beneath the road along this unit from being released into the environment.</p> <p>The economics here do not account of the benefit of not having to remove all of the landfill material.</p> <p>Nor do the economics take account of any environmental dis-benefits from HTL that may result from coastal squeeze.</p>	<p>Benefit of protecting the landfill (i.e. not incurring cost of removing it) needs to be included in the economics.</p> <p>The economics for this unit also need to be considered in the whole with the adjacent units, the management of which are all significantly inter-related.</p>	<p>BCR = 0.24</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefit of not having to remove the landfill material and the costs and benefits of managing this unit in combination with the adjacent units. This requires further investigation.</p>
7c09 – Appledore	HTL	HTL	HTL	£0.16	£7.75	<p>HTL at Appledore will continue to protect property, infrastructure and industry from flood and erosion risk.</p> <p>The value of infrastructure and industry at Appledore is not accounted for in the economics.</p>	<p>The value of infrastructure and industry at Appledore needs to be investigated further.</p>	<p>BCR = 0.02</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure and industry at Appledore. This requires further investigation.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c10 – Appledore to Cleave Moorings, Northam	NAI	NAI	NAI	£0.05	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c11 – Cleave Moorings, Northam and Bideford	HTL	HTL	HTL	£124.91	£5.29	HTL here will continue to protect the extensively developed area of Bideford against the risk of flooding.  The economics here do not account for the significant amenity value of the estuary frontage, nor the value of highways infrastructure located along much of this area.	No specific uncertainties that would affect economic viability.	BCR = 23.63  SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.
7c12 – Upper Torridge Estuary (right (east) and left (west) banks between Bideford and Weare Gifford)	NAI/MR /HTL	NAI/MR /HTL	NAI/MR /HTL	£6.51	£1.03	The policy in the upper Torridge Estuary needs further investigation to define more precisely where NAI, HTL or MR is the correct policy for discrete lengths of the upper estuary.  The economics here do not account for the value of highways infrastructure located along much of this area.	Further detailed study is required to investigate the economic case for specific discrete lengths of coast.	BCR = 6.34  Based on assumptions made in the SMP about lengths of frontage where HTL or MR is more likely to occur than NAI, the SMP policy is <i>economically viable</i> based on monetised benefits alone. Further investigation is required.



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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c13 – East-the-Water to Torridge Bridge (A39)	HTL	HTL	HTL	£18.65	£6.52	<p>HTL here will continue to protect the developed area of East-the-Water against the risk of flooding.</p> <p>The economics here do not account for the value of highways infrastructure located along much of this area.</p>	No specific uncertainties that would affect economic viability.	<p>BCR = 2.86</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>
7c14 – Torridge Bridge (A39) to Instow	HTL	HTL	HTL	£0.25	£4.56	<p>The purpose of HTL here is to protect the important infrastructure that runs along this frontage. This supports similar policies that will protect this infrastructure in other units.</p> <p>The economics here do not account for the value of highways infrastructure located along much of this area.</p>	The value of infrastructure needs to be investigated further.	<p>BCR = 0.05</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure. This requires further investigation.</p>
7c15 – Instow	HTL	HTL	HTL	£9.91	£3.12	<p>HTL here will continue to protect the developed area of Instow against the risk of flooding.</p> <p>The economics here do not account for the value of highways infrastructure located along much of this area.</p>	No specific uncertainties that would affect economic viability.	<p>BCR = 3.18</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c16 – Instow Dunes	MR	MR	MR	£0.00	£0.58	<p>MR policy is to allow management of the dunes to provide a robust natural defence to reduce flood risk to Instow in support of the adjacent policy of HTL at Instow.</p> <p>The benefit of this needs to be related to the benefits at Instow which are £9.91m.</p> <p>Environmental and amenity benefits of retaining the dunes as a natural feature are also not accounted for in the economics for this unit.</p>	Value of environmental and amenity assets of the dunes needs to be further investigated.	<p>BCR = 0.00</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefit of managing this area to reduce flood risk to Instow, where the benefit is £9.91m. This link requires further investigation.</p> <p>Additional benefits from retaining the dunes as a natural feature also need investigation.</p>
7c17 – Instow to Yelland	HTL	MR	HTL	£1.48	£6.23	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.	<p>BCR = 0.24</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c18 – Home Farm Marsh (Yelland to Fremington)	HTL	MR	HTL	£1.10	£3.40	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.	<p>BCR = 0.32</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>
7c19 - Fremington	HTL	HTL	HTL	£1.10	£0.99	<p>The purpose of HTL is to continue to protect the developed area of Fremington from the risk of flooding.</p> <p>The economics here do not account for the value of highways infrastructure located along parts of this area.</p>	The value of infrastructure needs to be investigated further.	<p>BCR = 1.11</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>
7c20 – Fremington to Penhill Point	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c21 – Penhill Point to Bickington	HTL	MR	HTL	£1.09	£5.20	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	<p>Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.</p>	<p>BCR = 0.21</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>
7c22 – Bickington to A39	HTL	HTL	HTL	£48.69	£7.20	<p>The purpose of HTL is to continue to protect the developed area of Bickington and Sticklepath from the risk of flooding.</p> <p>The economics here do not account for the value of highways or railway infrastructure located along parts of this unit.</p>	<p>No specific uncertainties that would affect economic viability.</p>	<p>BCR = 6.76</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c23 – Upper Taw Estuary (right (east) and left (west) banks between A39 to tidal limit near Bishops Tawton)	NAI/MR /HTL	NAI/MR /HTL	NAI/MR /HTL	£8.36	£3.46	<p>The policy in the upper Taw Estuary needs further investigation to define more precisely where NAI, HTL or MR is the correct policy for discrete lengths of the upper estuary.</p> <p>The economics here do not account for the value of highways infrastructure located along much of this area.</p>	Further detailed study is required to investigate the economic case for specific discrete lengths of coast.	<p>BCR = 2.41</p> <p>Based on assumptions made in the SMP about lengths of frontage where HTL or MR is more likely to occur than NAI, the SMP policy is <b>economically viable</b> based on monetised benefits alone. Further investigation is required.</p>
7c24 – A39 to West Ashford (Barnstaple)	HTL	HTL	HTL	£368.04	£10.66	<p>The purpose of HTL is to continue to protect the extensively developed area of Barnstaple from the risk of flooding.</p> <p>The economics here do not account for the value of highways or railway infrastructure located along parts of this unit.</p>	No specific uncertainties that would affect economic viability.	<p>BCR = 34.53</p> <p>SMP policy is <b>economically viable</b> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c25 – West Ashford to Braunton (east bank of River Caen)	HTL	MR	HTL	£17.47	£10.74	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	<p>Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.</p>	<p>BCR = 1.63</p> <p>SMP policy is <i>economically viable</i> and is likely to be more so when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>
7c26 – Braunton to Horsey Island (west bank of River Caen)	HTL	MR	HTL	£7.75	£2.84	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	<p>Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.</p>	<p>BCR = 2.73</p> <p>SMP policy is <i>economically viable</i> and is likely to be more so when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>

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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c27 – Horsey Island	HTL	MR	HTL	£1.11	£3.94	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	<p>Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.</p>	<p>BCR = 0.28</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>
7c28 – Horsey Island to Crow Point	HTL	MR	HTL	£4.12	£1.06	<p>There is potential to implement MR along parts of this frontage for the benefit of the wider estuary system in terms of reduced flood risk whilst also creating new habitat to offset losses elsewhere in the estuary where the policy is to HTL.</p> <p>This estuary wide economic links are not accounted for in this appraisal.</p>	<p>Viability of implementing MR and its economic and environmental benefits in context of the wider estuary system needs to be investigated further.</p>	<p>BCR = 3.89</p> <p>SMP policy is <i>economically viable</i> and is likely to be more so when take account of the benefits for flood management and habitat creation in the context of the wider estuary system. This requires further investigation.</p>

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7c29 – Crow Point & Crow Neck	MR	MR	MR	£0.00	£0.29	<p>The purpose of the plan here is to allow intervention if further detailed study shows this area provides important flood risk benefits for the inner Tav/Torridge Estuary.</p> <p>If it is not important for this purpose then the policy will effectively be NAI.</p>	Need to intervention here is uncertain and needs further study.	<p>BCR = 0.01</p> <p>SMP policy is <i>potentially economically viable</i> but only if intervention here is needed for benefit of the inner estuary. These links need further investigation.</p>
7c30 – Braunton Burrows	NAI	NAI	NAI	£0.01	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c31 – Saunton Down	NAI	NAI	NAI	£0.06	£0.00	<p>NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.</p> <p>Provision included in the Plan to allow private defence measures at Saunton Down if non-public funds available.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>Potential for future defence at Saunton Down will be dependent on availability of non-flood and coastal defence budget funds.</p>	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.



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	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7c32 – Croyde Sands	NAI	NAI	NAI	£0.29	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c33 – Middleborough Hill (Croyde Bay north)	NAI	NAI	NAI	£0.04	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.  Provision included in the Plan to allow private defence measures at Middleborough Hill if non-public funds available.	No specific uncertainties that would affect economic viability.  Potential for future defence at Middleborough Hill will be dependent on availability of non-flood and coastal defence budget funds.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c34 – Middleborough Hill (Croyde Bay north) to Baggy Point	NAI	NAI	NAI	£0.01	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c35 – Baggy Point to Napps Cliff (Putsborough)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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7c36 – Putsborough Sands and Vention	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.  Provision included in the Plan to allow private defence measures at Vention if non-public funds available.	No specific uncertainties that would affect economic viability.  Potential for future defence at Vention will be dependent on availability of non-flood and coastal defence budget funds.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c37 – Vention to Woolacombe Beach (Woolacombe Sands)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c38 – Woolacombe Beach	NAI	NAI	NAI	£0.58	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7c39 – Woolacombe to Morte Point	NAI	NAI	NAI	£0.01	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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7d01 – Morte Point to Lee (west)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d02 – Lee	HTL	HTL	HTL	£0.00	£0.74	<p>Purpose of HTL is to protect the local infrastructure that is the only access into Lee.</p> <p>The economics here do not account for the value of highways infrastructure located along this unit.</p>	The value of infrastructure needs to be investigated further.	BCR = 0.00 SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure. This requires further investigation.
7d03 – Lee (east) to Ilfracombe (west)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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7d04 – Ilfracombe	HTL (locally ATL)	HTL	HTL	£6.90	£6.82	HTL aims to continue to protect the extensively developed area of Ilfracombe from flood and erosion risk for both those that reside and work there as well as the many tourists who visit Ilfracombe each year, contributing to the economy of the wider area.  Benefits do not take account of the tourism value of Ilfracombe, which are likely to be significant.	Value of tourism assets needs to be investigated further.  Future defence provision may also, in part, be co-funded as part of proposed scheme to re-develop Ilfracombe Harbour (locally ATL).	BCR = 1.01  SMP policy is <b>economically viable</b> based on monetised benefits alone. Additional benefits make SMP policy more robust.
7d05 – Ilfracombe (east – Larkstone Beach) to Hele Beach (west)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <b>economically viable</b> as there are few assets at risk.
7d06 – Hele Beach	HTL	HTL	HTL	£0.46	£0.47	Purpose of HTL is to protect the highways infrastructure that is also to be protected along other parts of the SMP frontage.  The economics here do not account for the value of highways infrastructure located along this unit.	<u>The value of infrastructure</u> needs to be investigated further.	BCR = 0.98  SMP policy is <b>potentially economically viable</b> when take account of the value of infrastructure. This requires further investigation.

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7d07 – Hele Beach (east) to Watermouth Slipway	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d08 – Watermouth Slipway	NAI	NAI	NAI	£0.01	£0.00	<p>NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.</p> <p>Provision included in the Plan to allow private defence measures at Watermouth Slipway if non-public funds available.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>Potential for future defence at Watermouth Slipway will be dependent on availability of non-flood and coastal defence budget funds.</p>	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d09 – Watermouth Slipway to Combe Martin	NAI	NAI	NAI	£0.01	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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7d10 – Combe Martin	HTL	HTL	HTL	£2.48	£0.77	<p>HTL aims to continue to protect the extensively developed area of Combe Martin from flood and erosion risk for both those that reside and work there as well as the many tourists who visit Combe Martin each year, contributing to the economy of the wider area.</p> <p>Benefits do not take account of the tourism value of Combe Martin, which are likely to be significant.</p> <p>The economics here do not account for the value of highways infrastructure located along this unit.</p>	Value of infrastructure and tourism assets needs to be investigated further.	BCR = 3.22  SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.
7d11 – Combe Martin to Lynmouth	NAI	NAI	NAI	£0.02	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

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7d12 – Lynmouth	HTL	HTL	HTL	0.01	5.58	<p>HTL aims to continue to protect the extensively developed area of Lynmouth from flood and erosion risk for both those that reside and work there as well as the many tourists who visit Lynmouth each year, contributing to the economy of the wider area.</p> <p>Benefits do not take account of the tourism value of Lynmouth, which are likely to be significant.</p> <p>The economics here do not account for the value of highways infrastructure located along this unit.</p>	Value of infrastructure and tourism assets needs to be investigated further.	BCR = 0.00  SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure and tourism assets. This requires further investigation.
7d13 – Lynmouth to Foreland Point	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d14 – Foreland Point to Gore Point	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d15 – Gore Point to Porlock Weir	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d16 – Porlock Weir	NAI	NAI	NAI	£1.86	£0.00	<p>NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated features. To HTL along this unit effectively will need much larger defences over a longer length, which can not be justified on economic grounds and would have a much more significant impact on processes and landscape.</p> <p>Provision included in the Plan to allow private defence measures at Porlock Weir if non-public funds available.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>Potential for future defence at Porlock Weir will be dependent on availability of non-flood and coastal defence budget funds.</p>	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d17 – Porlock Weir to Hurlstone Point	NAI	NAI	NAI	£0.91	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.



Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d18 – Hurlstone Point to Minehead (west)	NAI	NAI	NAI	£0.02	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d19 – Minehead	HTL	HTL	HTL	£229.92	£19.71	HTL aims to continue to protect the extensively developed area of Minehead from flood and erosion risk for both those that reside and work there as well as the many tourists who visit Minehead each year, contributing to the economy of the wider area.  Benefits do not take account of the tourism value of Minehead, which are likely to be significant.	Value of tourism assets needs to be investigated further.	BCR = 11.67  SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.
7d20 – The Warren (Minehead Golf Course)	HTL	HTL	MR	£1.99	£4.60	HTL aims to continue to protect the Minehead against the risk of flooding from this section (and adjacent sections) in a sustainable way.  Benefits do not take account of the amenity value of this frontage.	Value of amenity assets needs to be investigated further.  The economics for this unit also need to be considered in the whole with the adjacent units, particularly Minehead, as the management here is aimed at protecting Minehead from flooding via this unit.	BCR = 0.43  SMP policy is <i>potentially economically viable</i> when take account of likely significant amenity value of the frontage and the benefits of reduced flood risk to Minehead from this area. This requires further investigation.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d21 – Dunster Beach	HTL	HTL	MR	£17.73	£3.94	<p>HTL aims to continue to protect the Minehead against the risk of flooding from this section (and adjacent sections) in a sustainable way.</p> <p>Benefits do not take account of the amenity value of this frontage.</p> <p>The value of highway and railway infrastructure along this frontage is also not accounted for.</p>	<p>Value of infrastructure and amenity assets needs to be investigated further.</p> <p>The economics for this unit also need to be considered in the whole with the adjacent units, particularly Minehead, as the management here is aimed at protecting Minehead from flooding via this unit.</p>	<p>BCR = 4.50</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits reduced flood risk to Minehead from this area, whilst needing further investigation, make SMP policy more robust.</p>
7d22 – Dunster Beach (east) to Ker Moor	MR	HTL	HTL	£1.92	£4.99	<p>HTL aims to continue to protect the Minehead against the risk of flooding from this section (and adjacent sections) in a sustainable way.</p> <p>Benefits do not take account of the amenity value of this frontage.</p> <p>The value of highway and railway infrastructure along this frontage is also not accounted for.</p>	<p>Value of infrastructure and amenity assets needs to be investigated further.</p> <p>The economics for this unit also need to be considered in the whole with the adjacent units, particularly Minehead, as the management here is aimed at protecting Minehead from flooding via this unit.</p>	<p>BCR = 0.38</p> <p>SMP policy is <i>potentially economically viable</i> when take account of amenity value of the frontage and the benefits of reduced flood risk to Minehead from this area. This requires further investigation.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d23 – Blue Anchor	HTL	HTL	NAI (locally MR)	£0.50	£3.60	<p>Purpose of HTL is to protect the highways infrastructure that is also to be protected along other parts of the SMP frontage and for which a recent scheme to protect the road in this unit has been constructed.</p> <p>The economics here do not account for the value of highways infrastructure located along this unit.</p>	The value of infrastructure needs to be investigated further.	<p>BCR = 0.14</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure. This requires further investigation.</p>
7d24 – Blue Anchor to Watchet	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d25 – Watchet to Doniford	HTL	HTL	HTL	£3.36	£8.97	<p>The purpose of the HTL policy is to protect the developed area of Watchet against the risk of flooding and erosion.</p> <p>The economics do not account for infrastructure assets which include a highway and railway that are to be protected by policies in other parts of the SMP frontage for much of the 100 year period covered by the SMP. Nor is account taken of the economic value of Watchet Harbour to the economy of the area.</p>	Value of infrastructure and amenity assets needs to be investigated further.	<p>BCR = 0.37</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of infrastructure. This requires further investigation.</p>
7d26 – Doniford to St Audries Bay	NAI	NAI	NAI	£0.01	£0.00	<p>NAI along this predominantly undefended coast would result in naturally functioning coastline with benefits for designated geological features.</p> <p>Provision included in the Plan to allow private defence measures at Doniford Holiday Park if non-public funds available.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>Potential for future defence at Doniford Holiday Park will be dependent on availability of non-flood and coastal defence budget funds.</p>	<p>Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d27 – St Audries Bay	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d28 – St Audries Bay to Lilstock	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7d29 – Lilstock	HTL	NAI	NAI	£0.00	£0.04	HTL in the short term is to allow ongoing maintenance of the current defence whilst putting in place measures to move to the medium and long term policy of NAI.	No specific uncertainties that would affect economic viability.	BCR = 0.04  SMP policy is <i>not economically viable</i> but is a current ongoing maintenance item carried out as required by the EA whilst planning the move to the medium to long term policy.
7d30 – Lilstock to Hinkley Point	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d31 – Hinkley Point	HTL/ NAI	HTL/ NAI	HTL/ NAI	£0.01	£15.34	<p>The purpose of HTL is to allow continued protection of Hinkley Point Nuclear Power Station.</p> <p>No economic value of the power station is available for this appraisal. Future defence will be the responsibility of the power station owners.</p>	No specific uncertainties that would affect economic viability.	<p>BCR = 0.00</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of nuclear power station.</p>
7d32 – Hinkley Point to Stolford	HTL	MR	HTL	£2.69	£2.91	<p>The purpose of long term HTL is to reduce risk of flooding affecting Hinkley Point Nuclear Power Station.</p> <p>No economic value of the power station is available for this appraisal. Future defence will be the responsibility of the power station owners.</p> <p>The environmental benefit of MR is also not accounted for in the economics.</p>	The benefit of MR to the power station and in terms of habitat creation need to be investigated further.	<p>BCR = 0.93</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of nuclear power station. This needs further investigation.</p>
7d33 – Stolford	HTL	MR	HTL	£5.11	£0.98	The policy here is to continue to defend Stolford in a sustainable way, working also with policies for the rest of the Steart Peninsula.	No specific uncertainties that would affect economic viability.	<p>BCR = 5.21</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
<b>7d34 – Stolford to Wall Common</b>	HTL moving to MR	NAI (locally HTL)	NAI (locally HTL)	£18.12	£7.81	<p>The main purpose of MR in the short term, moving towards NAI in the long term, is to provide habitat to offset losses caused by HTL policies in other parts of the Severn Estuary system.</p> <p>The environmental benefit of MR is not accounted for in the economics. Nor is the value of power lines which could be protected locally.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>The management of this area and the wider Steart Peninsula is being investigated in detail by an ongoing project being led by the Environment Agency.</p>	<p>BCR = 2.32</p> <p>SMP policy in the short-term is <i>economically viable</i> based on monetised benefits alone.</p>
<b>7d35 – Steart Village</b>	MR	NAI	NAI	£10.85	£0.16	<p>The main purpose of HTL in the short term is to allow maintenance of defences whilst plans are developed to allow the transition towards NAI in the long term.</p>	<p>No specific uncertainties that would affect economic viability.</p> <p>The management of this area and the wider Steart Peninsula is being investigated in detail by an ongoing project being led by the Environment Agency.</p>	<p>BCR = 67.77</p> <p>SMP policy in the short-term is <i>economically viable</i> based on monetised benefits alone.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d36 – South of Steart Village to north of Comwich (line of national grid power lines)	HTL	NAI	NAI	£7.42	£0.12	The main purpose of HTL in the short term is to allow maintenance of defences whilst plans are developed to allow the transition towards NAI in the long term.	No specific uncertainties that would affect economic viability.  The management of this area and the wider Steart Peninsula is being investigated in detail by an ongoing project being led by the Environment Agency.	BCR = 63.06  SMP policy in the short-term is <b>economically viable</b> based on monetised benefits alone.
7d37 – Parrett Estuary from line of national grid power lines to Comwich	HTL	HTL	HTL	£6.99	£1.17	The main purpose of HTL in the short term is to allow maintenance of defences whilst plans are developed to allow the transition towards NAI in the long term.	No specific uncertainties that would affect economic viability.  The management of this area and the wider Steart Peninsula is being investigated in detail by an ongoing project being led by the Environment Agency.	BCR = 5.97  SMP policy is <b>economically viable</b> based on monetised benefits alone.
7d38 – Comwich	HTL	HTL	HTL	£32.06	£1.80	The HTL policy here will continue to reduce the risk of flooding to Comwich.	No specific uncertainties that would affect economic viability as these values have been investigated recently in detail as part of the Parrett Estuary Flood Risk Management Strategy.	BCR = 17.80  SMP policy is <b>economically viable</b> based on monetised benefits alone.



Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d39 – Combwich to Bridgwater (Parrett west)	HTL	HTL	MR	£502.67	£16.15	<p>The HTL policy here will continue to reduce the risk of flooding in the short to medium term.</p> <p>Move to MR in long term will create habitat of benefit to the wider area to offset losses where policy will remain HTL. This benefit is not accounted for in this appraisal.</p>	<p>No specific uncertainties that would affect economic viability as these values have been investigated recently in detail as part of the Parrett Estuary Flood Risk Management Strategy.</p>	<p>BCR = 31.12</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone.</p>
7d40 – Bridgwater (upper Parrett Estuary)	HTL	HTL	HTL	£1,595.51	£28.00	<p>The HTL policy here will continue to reduce the risk of flooding to Bridgwater.</p>	<p>No specific uncertainties that would affect economic viability as these values have been investigated recently in detail as part of the Parrett Estuary Flood Risk Management Strategy.</p>	<p>BCR = 56.98</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone.</p>
7d41 – Bridgwater to Dunball	HTL	HTL	HTL	£43.08	£5.90	<p>The HTL policy here will continue to reduce the risk of flooding to Bridgwater and Dunball and the wider Somerset Levels.</p>	<p>No specific uncertainties that would affect economic viability as these values have been investigated recently in detail as part of the Parrett Estuary Flood Risk Management Strategy.</p>	<p>BCR = 7.30</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
<b>7d42 – Dunball to River Brue</b>	HTL	HTL/ MR	HTL/ MR	£196.43	£32.60	<p>The HTL policy here will continue to reduce the risk of flooding in the short to medium term.</p> <p>Move to MR in medium to long term will create habitat of benefit to the wider area to offset losses where policy will remain HTL. This benefit is not accounted for in this appraisal.</p>	<p>No specific uncertainties that would affect economic viability as these values have been investigated recently in detail as part of the Parrett Estuary Flood Risk Management Strategy.</p>	<p>BCR = 6.03</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone.</p>
<b>7d43 – Burnham-on-Sea and Highbridge</b>	HTL	HTL	HTL	£1,614.28	£13.95	<p>The HTL policy here will continue to reduce the risk of flooding to Burnham-on-Sea and Highbridge and the wider Somerset Levels.</p>	<p>The amenity value of this frontage could be investigated further.</p>	<p>BCR = 115.68</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d44 – Berrow to Brean (north)	HTL	MR	MR	£1.05	£7.14	<p>The aim of the policy along this frontage is to continue to reduce the risk of flooding to the wider Somerset Levels that would be exposed to flood risk if the dunes that provide natural defence function along this stretch are eroded and breached in the future.</p> <p>This frontage is also important for tourism that is of benefit to the wider area. The tourism value of the frontage is not included in the economics.</p>	<p>The benefits of ongoing management along this frontage for reducing flood risk to the wider Somerset Levels, as well as the most appropriate long term sustainable management of this frontage, needs to be investigated further.</p> <p>The value of tourism also needs to be investigated further.</p>	<p>BCR = 0.15</p> <p>SMP policy is <i>potentially economically viable</i> when take account of the value of assets protected in the wider Somerset Levels as well as tourism value of this frontage. This needs further investigation.</p>
7d45 – Brean (north) to Brean Down	HTL	HTL	NAI	£8.62	£1.49	<p>The aim of the policy along this frontage is to continue to reduce the risk of flooding to the wider Somerset Levels in a sustainable way.</p> <p>This frontage is also important for tourism that is of benefit to the wider area. The tourism value of the frontage is not included in the economics.</p>	<p>The benefits of ongoing management along this frontage for reducing flood risk to the wider Somerset Levels, as well as the most appropriate long term sustainable management of this frontage, needs to be investigated further.</p> <p>The value of tourism also needs to be investigated further.</p>	<p>BCR = 5.78</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7d46 – Brean Down (south side)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7e01 – Brean Down (north side) to Axe Estuary mouth (west)	NAI	NAI	NAI	£0.00	£0.00	NAI along this currently undefended coast would result in naturally functioning coastline with benefits for designated geological features.	None identified.	Natural frontage. SMP policy is <i>economically viable</i> as there are few assets at risk.
7e02 – Axe Estuary west bank (mouth to near Diamond Farm)	HTL	HTL	MR	£3.75	£2.18	<p>The aim of the policy along this frontage is to continue to reduce the risk of flooding to Brean and Berrow from the Axe Estuary, and the wider Somerset Levels, in a sustainable way.</p> <p>MR in the long term will also provide habitat creation of benefit to the wider Severn Estuary system, offsetting losses caused by HTL policy in other areas.</p>	<p>The benefits of ongoing management along this frontage for reducing flood risk to the wider Somerset Levels needs to be investigated further.</p> <p>The value of habitat creation benefits also needs to be investigated further.</p>	<p>BCR = 1.72</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7e03 – Axe Estuary east bank (near Diamond Farm to mouth)	HTL	MR	HTL	£132.39	£8.05	<p>The aim of the policy along this frontage is to continue to reduce the risk of flooding to the wider Somerset Levels, in a sustainable way.</p> <p>MR in the long term along parts of this unit will also provide habitat creation of benefit to the wider Severn Estuary system, offsetting losses caused by HTL policy in other areas.</p>	<p>The benefits of ongoing management along this frontage for reducing flood risk to the wider Somerset Levels needs to be investigated further.</p> <p>The value of habitat creation benefits also needs to be investigated further.</p>	<p>BCR = 16.45</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>
7e04 – Axe Estuary mouth to Uphill	HTL	MR	HTL	£3.47	£2.32	<p>The aim of the policy along this frontage is to continue to reduce the risk of flooding to the wider Somerset Levels, in a sustainable way.</p> <p>MR in the long term along parts of this unit will also provide habitat creation of benefit to the wider Severn Estuary system, offsetting losses caused by HTL policy in other areas.</p>	<p>The benefits of ongoing management along this frontage for reducing flood risk to the wider Somerset Levels needs to be investigated further.</p> <p>The value of habitat creation benefits also needs to be investigated further.</p>	<p>BCR = 1.50</p> <p>SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.</p>

Policy Unit (Number and Description)	Preferred Policy			Broad-scale SMP Review (PV, £m)		Benefits and Negative Impacts not Included in Benefit-Cost Ratio	Key Uncertainties	Benefit-Cost Ratio & Justification for SMP Policy
	ST (to 2025)	MT (to 2055)	LT (to 2105)	Benefits of Policy	Costs of Policy			
7e05 – Uphill to Weston-super-Mare (south)	MR	MR	MR	£115.34	£1.15	<p>MR policy is to allow management of the dunes to provide a robust natural defence to reduce flood risk to Weston-super-Mare and the extensive low-lying hinterland.</p> <p>Environmental and amenity benefits of retaining the dunes as a natural feature are not accounted for in the economics for this unit.</p>	Value of environmental and amenity assets of the dunes needs to be further investigated.	BCR = 100.07  SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.
7e06 – Weston-super-Mare	HTL	HTL	HTL	£153.97	£5.76	<p>HTL aims to continue to protect the extensively developed area of Weston-super-Mare from flood and erosion risk for both those that reside and work there as well as the many tourists who visit Weston-super-Mare each year, contributing to the economy of the wider area.</p> <p>Benefits do not take account of the tourism value of Weston-super-Mare, which are likely to be significant.</p>	Value of tourism assets needs to be investigated further.	BCR = 26.72  SMP policy is <i>economically viable</i> based on monetised benefits alone. Additional benefits make SMP policy more robust.

## H.5 Sensitivity Testing

Sensitivity testing was undertaken to highlight uncertainty or risks that may affect policy decisions and identifies the consequences for the preferred scenario. This information helps understand how robust the policy decision is, helps identify where changes in future circumstances may affect the policy, helps understand where further knowledge is needed to reduce uncertainty and importantly provides a link to policy and option development within subsequent flood and erosion risk management strategies. The conclusion of this assessment is described as part of presenting the concluding policy decisions in the **Main Document (Section 5)**.

It is important to note that development of the Recommended Policies have recognised uncertainty is present and have therefore sought where needed to be adaptive and able to be refined through further understanding and evidence as gathered as part of the Action Plans going forward.

A staged approach has been applied involving the following:

- Understanding the ability for generic uncertainties to influence the policy decision (**Table H.5.1**);
- Recording of those uncertainties potentially affecting the economic assessment (**Section H.3.3**);
- Concluding on the influence of uncertainties as part of the presentation of the policy decision and determining the robustness of the policy decision (**Table H.5.1**); and,
- Detailing in the Action Plan (**Main Document – Section 6** and **Appendix M**) where further information is needed to help manage the policy going forwards to implementation stages.

SMP Procedural Guidance states that it is not appropriate to speculate regarding uncertainties in changes in social attitudes or socio-economic policy. As such, the following uncertainties are acknowledged here, but are not included in the main analysis:

- A change in social preferences in relation to an increased acceptance to flood and erosion and / or adaptive methods and changes in environmental legislation;
- A change in funding priorities leading to increased / decreased funding;
- Availability of compensation for those affected by flooding and / or erosion; and,
- An increasing prioritisation of agricultural land within flood and erosion risk management policy.

Supporting information regarding contemporary climate change predictions (**Appendix C**) and corresponding implications for the SMP area are found in **Annex H.3**.

### H.5.1 Uncertainty Identification Table

The table indicates those management policies that may be vulnerable to typical uncertainties.

Uncertainty	Exposure to Uncertainty			
	HTL	ATL	MR	NAI
<b>Increased development</b>	Increased development will increase hinterland assets making Holding or Advancing the defence line more attractive.		An increase in development will reduce space for MR and increase hinterland assets thereby reducing the potential for MR and NAI. <b>MR and NAI policy exposed to this uncertainty</b>	
<b>Decreased development</b>	Holding or Advancing the line may not be economically justifiable if future development decreases or if policy choices have been made based on an assumption of increased future development. <b>HTL and ATL policy exposed to this uncertainty</b>		Reduced development will increase space for MR (enhancing the ability to retreat defences) and making a decision not to intervene more robust. Ultimately decreased development could bring forward any longer-term MR and NAI policies.	
<b>Knowledge on climate change forecasts (sea level rise and storminess)</b>	Enhanced rates of SLR and storminess may result in coastal squeeze and increased wave energy at defences making defences more expensive and technically difficult to maintain. This may reduce the potential for long-term Maintaining or Advancing the line and increase the attractiveness of other alternatives. <b>HTL and ATL policy exposed to this uncertainty</b>		Enhanced rates of SLR and storminess may be accommodated naturally by MR and NAI. However, in the longer term defended and undefended hinterland may be under threat resulting in additional investment or need to relocate and/or lose assets. Particularly relevant in areas of low lying hinterland. <b>MR and NAI policy exposed to this uncertainty</b>	
<b>Reductions in sediment supply</b>	A reduced sediment supply may increase the exposure of defences to wave energy, defences will become more expensive and technically difficult to maintain. This may reduce the potential for long-term Holding or Advancing the line and increase the attractiveness of other alternatives. <b>HTL and ATL policy exposed to this uncertainty</b>		Reduced sediment supplies will potentially limit the ability for MR sites to be self-maintaining but would not be a primary driver for selection of MR or NAI.	
<b>Degree of land contaminated</b>	The presence of contamination would increase the attractiveness of Holding or Advancing the line.		The presence of contaminated land would require expensive remediation to facilitate MR or NAI, making them less attractive as a policy. <b>MR and NAI policy exposed to this uncertainty</b>	
<b>Accuracy of economic information</b>	The accuracy of economic information in terms of costs and benefits could potentially affect policy choice in cases where the decision is driven by economic viability and is marginal. This uncertainty arises from the level of detail within the economic analysis and the availability of supporting evidence (such as numerical modelling results). <b>All policies are exposed to this uncertainty</b>			
<b>Presence of protected habitats and species</b>	The presence of protected habitats will increase the potential need for offsetting habitats, increasing cost and difficulty in deliverability. This is unlikely to result in a change in HTL policy but makes ATL less attractive. <b>ATL policy exposed to this uncertainty</b>		The presence of protected habitats (freshwater or saline) will result in the need to develop integrated solutions that maintain and improve existing habitats This is unlikely to result in a change to a MR policy but makes a NAI policy less attractive. <b>NAI policy exposed to this uncertainty</b>	



## Annex H.1 – Supporting Economic Appraisal Data – Damages/Benefits

### H.1.1 Summary of No Active Intervention Erosion Losses

*Table 1 – No Active Intervention Residential Erosion Losses (note, for brevity, only those policy units in which erosion losses occur are presented in this table)*

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Residential Erosion Losses	CV (£m)	PV (£m)
7c04	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7c05	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7c06	0-20	0	0	0.00	0.00	62	9.33	1.41
	20-50	31	0	4.58	0.95			
	50-100	31	0	4.75	0.46			
7c33	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d01	0-20	12	0	1.68	1.68	12	1.68	1.68
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d04	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d06	0-20	1	0	0.29	0.29	1	0.29	0.29
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d19	0-20	0	1	0.15	0.15	17	2.47	0.36
	20-50	0	0	0.00	0.00			
	50-100	16	0	2.32	0.21			
7d21	0-20	0	0	0.00	0.00	2	0.42	0.02

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Residential Erosion Losses	CV (£m)	PV (£m)
	20-50	0	0	0.00	0.00			
	50-100	2	0	0.42	0.02			
7d25	0-20	0	5	0.63	0.63	23	3.09	0.91
	20-50	0	0	0.00	0.00			
	50-100	18	0	2.47	0.28			
7d44	0-20	0	0	0.00	0.00	32	7.94	0.82
	20-50	3	0	0.81	0.18			
	50-100	29	0	7.14	0.64			
7d45	0-20	0	0	0.00	0.00	4	0.98	0.18
	20-50	2	0	0.54	0.12			
	50-100	2	0	0.44	0.06			
7e06	0-20	0	8	1.04	1.04	62	8.57	2.53
	20-50	31	0	4.16	1.15			
	50-100	23	0	3.38	0.34			

Table 2 – No Active Intervention Commercial Erosion Losses (note, for brevity, only those policy units in which erosion losses occur are presented in this table)

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Commercial Erosion Losses	CV (£m)	PV (£m)
7c04	0-20	0	1	0.02	0.02	1	0.02	0.02
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7c05	0-20	0	0	0.00	0.00	1	0.02	0.00
	20-50	0	0	0.00	0.00			
	50-100	1	0	0.02	0.00			
7c06	0-20	0	0	0.00	0.00	86	3.23	0.43
	20-50	5	0	0.40	0.09			
	50-100	81	0	2.83	0.34			
7c33	0-20	0	0	0.00	0.00	4	0.44	0.04
	20-50	0	0	0.00	0.00			
	50-100	4	0	0.44	0.04			
7d01	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d04	0-20	0	7	0.34	0.34	7	0.34	0.34
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d06	0-20	1	0	0.17	0.17	1	0.17	0.17
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d19	0-20	0	2	0.03	0.03	5	0.11	0.03
	20-50	0	0	0.00	0.00			
	50-100	3	0	0.08	0.01			
7d21	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d25	0-20	0	4	0.20	0.20	31	1.55	0.36
	20-50	0	0	0.00	0.00			
	50-100	27	0	1.34	0.16			

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Commercial Erosion Losses	CV (£m)	PV (£m)
7d44	0-20	0	0	0.00	0.00	4	0.48	0.03
	20-50	1	0	0.01	0.00			
	50-100	3	0	0.47	0.03			
7d45	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7e06	0-20	0	1	2.25	2.25	2	4.50	2.68
	20-50	0	0	0.00	0.00			
	50-100	1	0	2.25	0.43			

**Table 3 – No Active Intervention Combined Residential & Commercial Erosion Losses** (note, for brevity, only those policy units in which erosion losses occur are presented in this table)

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Residential & Commercial Erosion Losses	CV (£m)	PV (£m)
7c04	0-20	0	1	0.00	0.00			
	20-50	0	0	0.00	0.00	1	0.02	0.02
	50-100	0	0	0.00	0.00			
7c05	0-20	0	0	0.00	0.00			
	20-50	0	0	0.00	0.00	1	0.02	0.00
	50-100	1	0	0.00	0.00			
7c06	0-20	0	0	0.00	0.00			
	20-50	36	0	4.58	0.95	148	12.56	1.85
	50-100	112	0	4.75	0.46			
7c33	0-20	0	0	0.00	0.00			
	20-50	0	0	0.00	0.00	4	0.44	0.04
	50-100	4	0	0.00	0.00			
7d01	0-20	12	0	1.68	1.68			
	20-50	0	0	0.00	0.00	12	1.68	1.68
	50-100	0	0	0.00	0.00			
7d04	0-20	0	7	0.00	0.00			
	20-50	0	0	0.00	0.00	7	0.34	0.34
	50-100	0	0	0.00	0.00			
7d06	0-20	2	0	0.29	0.29			
	20-50	0	0	0.00	0.00	2	0.46	0.46
	50-100	0	0	0.00	0.00			
7d19	0-20	0	3	0.15	0.15			
	20-50	0	0	0.00	0.00	22	2.58	0.39
	50-100	19	0	2.32	0.21			
7d21	0-20	0	0	0.00	0.00			
	20-50	0	0	0.00	0.00	2	0.42	0.02
	50-100	2	0	0.42	0.02			
	0-20	0	9	0.63	0.63	54	4.64	1.27

Policy Unit #	Epoch	No. Lost to Erosion	No. Lost to Erosion but also Floodable	CV (£m)	PV (£m)	Total No. Residential & Commercial Erosion Losses	CV (£m)	PV (£m)
7d25	20-50	0	0	0.00	0.00			
	50-100	45	0	2.47	0.28			
7d44	0-20	0	0	0.00	0.00			
	20-50	4	0	0.81	0.18	36	8.43	0.85
	50-100	32	0	7.14	0.64			
7d45	0-20	0	0	0.00	0.00			
	20-50	2	0	0.54	0.12	4	0.98	0.18
	50-100	2	0	0.44	0.06			
7e06	0-20	0	9	1.04	1.04			
	20-50	31	0	4.16	1.15	64	13.07	5.21
	50-100	24	0	3.38	0.34			

### H.1.2 Summary of Preferred Plan Erosion Losses (Damages Avoided)

The following data takes into account the impacts of preferred policies on all units where erosion losses under the NAI scenario to determine the damages that would be avoided (if any) by adopting and implementing the preferred policies. This also demonstrates residual damages where properties at risk of flooding would remain at flood risk, though not necessarily remain at risk of erosion.

**Table 4 – Combined Residential & Commercial Erosion Losses under the Preferred Plan** (note, for brevity, only those policy units in which erosion losses occur are presented in this table)

Policy Unit #	Epoch	No. Lost to Erosion (under preferred plan)	No. at risk of Erosion but also Floodable	Losses under Preferred Plan CV (£m)	Losses under Preferred Plan PV (£m)	Total No. Residential & Commercial Properties Protected under Preferred Plan	Damages Avoided	
							PV (£m)	CV (£m)
7c04	0-20	0	1	0.02	0.02	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7c05	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	1	0	0.02	0.00			
7c06	0-20	0	0	0.00	0.00	148	1.85	12.56
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7c33	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	4	0	0.44	0.03			
7d01	0-20	12	0	1.68	1.68	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d04	0-20	0	7	0.34	0.34	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d06	0-20	0	0	0.00	0.00	2	0.46	0.46
	20-50	0	0	0.00	0.00			

Policy Unit #	Epoch	No. Lost to Erosion (under preferred plan)	No. at risk of Erosion but also Floodable	Losses under Preferred Plan CV (£m)	Losses under Preferred Plan PV (£m)	Total No. Residential & Commercial Properties Protected under Preferred Plan	Damages Avoided	
							PV (£m)	CV (£m)
	50-100	0	0	0.00	0.00			
7d19	0-20	0	3	0.18	0.18	19	0.22	2.40
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d21	0-20	0	0	0.00	0.00	0	0.00	0.00
	20-50	0	0	0.00	0.00			
	50-100	2	0	0.00	0.00			
7d25	0-20	0	9	0.83	0.83	45	0.44	3.81
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			
7d44	0-20	0	0	0.00	0.00	36	0.54	4.58
	20-50	4	0	0.00	0.00			
	50-100	32	0	3.84	0.31			
7d45	0-20	0	0	0.00	0.00	2	0.08	0.00
	20-50	2	0	0.00	0.00			
	50-100	2	0	0.98	0.10			
7e06	0-20	0	9	3.29	3.29	55	1.92	9.78
	20-50	0	0	0.00	0.00			
	50-100	0	0	0.00	0.00			



### H.1.3 Summary of No Active Intervention Flooding Assets at Risk

The following data presents the value of property and agricultural land at risk of flooding.

**Table 5 – Residential and Commercial Property, and Agricultural Land Flood Losses** (note, for brevity, only those policy units in which flood losses occur are presented in this table).

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7c03	Hartland Point to Clovelly	1	0.3	0	0.0	1	0.3	0.00	0.00	0.18	1.65	0.00	0.0
7c04	Clovelly	0	0.0	11	0.6	11	0.6	0.00	0.00	0.00	0.07	0.00	0.0
7c05	Clovelly to Westward Ho! (Seaford House)	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	0.00	0.0
7c07	Northam Burrows	2	0.3	0	0.0	2	0.3	0.00	0.00	0.00	15.31	108.82	1.3
7c08	Skern Salt marsh to Appledore (west)	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	16.59	114.17	1.4
7c09	Appledore	1	0.2	0	0.0	1	0.2	0.00	0.00	0.05	0.00	0.00	0.0
7c10	Appledore to Cleave Moorings, Northam	0	0.0	0	0.0	0	0.0	0.00	0.00	3.66	0.00	0.00	0.0
7c11	Cleave Moorings, Northam and Bideford	647	100.6	138	24.2	785	124.8	0.00	0.00	8.07	0.15	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7c12	Upper Torridge Estuary (right (east) and left (west) banks between Bideford and Weare Gifford)	27	5.1	2	0.0	29	5.1	0.00	0.00	31.97	83.05	0.00	0.0
7c13	East-the-Water to Torridge Bridge (A39)	115	16.4	21	1.6	136	18.0	0.00	2.16	6.24	44.39	0.00	0.0
7c14	Torridge Bridge (A39) to Instow	1	0.2	0	0.0	1	0.2	0.00	0.00	4.85	0.00	0.00	0.0
7c15	Instow	63	9.4	8	0.5	71	9.9	0.00	0.00	0.00	4.16	0.00	0.0
7c17	Instow to Yelland	0	0.0	12	0.4	12	0.4	0.00	0.00	17.42	70.35	0.00	0.0
7c18	Home Farm Marsh (Yelland to Fremington)	0	0.0	0	0.0	0	0.0	0.00	2.78	47.18	39.20	0.00	0.0
7c19	Fremington	5	1.1	0	0.0	5	1.1	0.00	0.00	0.00	0.00	0.00	0.0
7c21	Penhill Point to Bickington	0	0.0	0	0.0	0	0.0	0.00	5.84	9.94	5.80	66.70	0.8
7c22	Bickington to A39	102	16.0	46	32.7	148	48.7	0.00	0.00	0.00	0.00	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7c23	Upper Taw Estuary (right (east) and left (west) banks between A39 to tidal limit near Bishops Tawton)	31	6.5	6	0.2	37	6.7	0.00	0.00	6.51	129.68	0.00	0.0
7c24	A39 to West Ashford (Barnstaple)	1732	273.3	692	93.5	2424	366.8	0.00	0.36	18.38	80.37	0.00	0.0
7c25	West Ashford to Braunton (east bank of River Caen)	93	17.0	1	0.0	94	17.0	0.00	1.73	0.70	33.83	0.00	0.0
7c26	Braunton to Horsey Island (west bank of River Caen)	12	2.8	5	1.1	17	3.9	0.00	28.19	166.17	120.51	0.00	0.0
7c27	Horsey Island	0	0.0	1	0.0	1	0.0	0.00	0.00	88.46	0.00	0.00	0.0
7c28	Horsey Island to Crow Point	0	0.0	0	0.0	0	0.0	0.00	24.25	166.35	142.58	0.00	0.0
7c29	Crow Point & Crow Neck	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.13	0.00	0.0
7c30	Braunton Burrows	0	0.0	0	0.0	0	0.0	0.00	0.00	0.68	0.00	0.00	0.0
7c31	Saunton Down	0	0.0	0	0.0	0	0.0	0.00	0.00	5.05	0.00	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7c32	Croyde Sands	1	0.2	3	0.1	4	0.2	0.00	0.28	0.00	5.73	0.00	0.0
7c33	Middleborough Hill (Croyde Bay north)	0	0.0	0	0.0	0	0.0	0.00	0.79	1.09	0.00	0.00	0.0
7c34	Middleborough Hill (Croyde Bay north) to Baggy Point	0	0.0	0	0.0	0	0.0	0.00	0.00	0.81	0.00	0.00	0.0
7c38	Woolacombe Beach	3	0.6	0	0.0	3	0.6	0.00	0.00	0.00	1.24	0.00	0.0
7c39	Woolacombe to Morte Point	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.21	0.94	0.0
7d01	Morte Point to Lee (west)	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.01	0.02	0.0
7d02	Lee	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.26	0.00	0.0
7d04	Ilfracombe	34	5.3	36	1.6	70	6.9	0.00	0.00	0.00	0.00	0.02	0.0
7d06	Hele Beach	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	0.00	0.0
7d07	Hele Beach (east) to Watermouth Slipway	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.16	0.00	0.0
7d08	Watermouth Slipway	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.85	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7d09	Watermouth Slipway to Combe Martin	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.95	0.00	0.0
7d10	Combe Martin	11	1.6	20	0.9	31	2.5	0.00	0.00	0.11	0.25	0.00	0.0
7d11	Combe Martin to Lynmouth	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	1.24	0.0
7d12	Lynmouth	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	0.81	0.0
7d14	Foreland Point to Gore Point	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	0.30	0.0
7d16	Porlock Weir	8	1.3	15	0.6	23	1.9	0.00	0.00	0.00	0.00	0.00	0.0
7d17	Porlock Weir to Hurlstone Point	0	0.0	0	0.0	0	0.0	0.00	0.00	37.72	35.77	0.00	0.0
7d18	Hurlstone Point to Minehead (west)	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.56	0.82	0.0
7d19	Minehead	1182	154.3	365	73.4	1547	227.7	0.00	9.05	42.93	106.15	0.00	0.0
7d20	The Warren (Minehead Golf Course)	0	0.0	0	0.0	0	0.0	0.00	9.05	42.93	108.93	0.00	0.0
7d21	Dunster Beach	68	16.2	4	0.1	72	16.3	0.00	15.07	64.03	38.31	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7d22	Dunster Beach (east) to Ker Moor	0	0.0	0	0.0	0	0.0	0.00	14.68	104.30	35.87	0.00	0.0
7d23	Blue Anchor	1	0.2	2	0.1	3	0.3	0.00	0.00	14.82	0.00	0.00	0.0
7d25	Watchet to Doniford	18	2.2	16	0.7	34	2.9	0.00	0.00	1.14	0.00	0.00	0.0
7d26	Doniford to St Audries Bay	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.62	0.00	0.0
7d28	St Audries Bay to Lilstock	0	0.0	0	0.0	0	0.0	0.00	0.00	0.38	0.00	0.00	0.0
7d29	Lilstock	0	0.0	0	0.0	0	0.0	0.00	0.00	0.12	0.00	0.00	0.0
7d31	Hinkley Point	0	0.0	0	0.0	0	0.0	0.00	0.00	0.86	0.01	0.00	0.0
7d32	Hinkley Point to Stolford	5	1.0	0	0.0	5	1.0	0.00	0.00	37.08	99.53	0.00	0.0
7d33	Stolford	19	3.1	2	0.1	21	3.2	0.00	0.00	77.00	62.10	16.44	0.2
7d34	Stolford to Wall Common	35	7.2	2	0.0	37	7.2	0.00	0.00	711.21	87.29	85.39	1.0
7d35	Stewart Village	21	4.0	15	0.0	36	4.0	0.00	0.00	459.43	46.51	45.97	0.6

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7d36	South of Steart Village to north of Comwich (line of national grid power lines)	0	0.0	0	0.0	0	0.0	0.00	0.00	483.80	47.64	68.31	0.8
7d37	Parrett Estuary from line of national grid power lines to Comwich	0	0.0	0	0.0	0	0.0	0.00	0.00	498.81	40.38	26.11	0.3
7d38	Comwich	175	31.6	4	0.1	179	31.7	0.00	0.00	30.01	0.00	0.00	0.0
7d39	Comwich to Bridgwater (Parrett west)	2956	471.1	97	14.3	3053	485.5	4.95	152.44	1233.02	0.00	0.00	0.0
7d40	Bridgwater (upper Parrett Estuary)	8569	1,334.1	956	254.2	9525	1,588.3	39.80	20.17	520.82	0.00	0.00	0.0
7d41	Bridgwater to Dunball	16	2.5	69	35.8	85	38.2	0.00	0.00	390.60	0.00	0.00	0.0
7d42	Dunball to River Brue	826	146.6	127	25.0	953	171.6	0.00	161.77	1842.85	0.00	0.00	0.0
7d43	Burnham-on-Sea and Highbridge	8573	1,496.7	618	96.0	9191	1,592.6	0.00	0.00	1750.39	0.43	0.00	0.0
7d44	Berrow to Brean (north)	2	0.3	2	0.2	4	0.5	0.00	0.00	0.00	0.00	0.00	0.0

Policy Unit		Residential		Commercial		Total (Residential + Commercial)		Agricultural Land Area Flooded (Hectares)					Total cost of agricultural land lost CV (£m)
		No.	CV (£m)	No.	CV (£m)	No.	CV (£m)	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	
7d45	Brean (north) to Brean Down	13	2.3	29	2.5	42	4.8	0.00	0.00	304.84	0.00	0.00	0.0
7e01	Brean Down (north side) to Axe Estuary mouth (west)	0	0.0	0	0.0	0	0.0	0.00	0.00	0.00	0.00	0.00	0.0
7e02	Axe Estuary west bank (mouth to near Diamond Farm)	0	0.0	1	0.0	1	0.0	0.00	0.00	301.60	0.00	0.00	0.0
7e03	Axe Estuary east bank (near Diamond Farm to mouth)	429	89.6	91	9.6	520	99.2	1.28	0.66	2518.15	160.47	0.00	0.0
7e04	Axe Estuary mouth to Uphill	19	3.1	1	0.1	20	3.2	0.00	0.00	0.00	21.13	0.00	0.0
7e05	Uphill to Weston-Super-Mare (south)	581	112.9	21	1.8	602	114.6	0.00	0.00	0.00	57.63	0.00	0.0
7e06	Weston-super-Mare	570	77.1	276	74.9	846	152.0	0.00	0.00	0.00	0.83	0.00	0.0



## Annex H.2 – Supporting Economic Appraisal Data for SMP Costs

This annex presents the full preferred scenario costs developed for the SMP. As outlined in the assumptions below, these are generated from national generic costs and do not reflect local conditions. These figures should not be considered out of context. The costs presented in section H4 have been taken from available strategy and/or scheme documents where available, as these represent a more accurate and site specific consideration of implementation costs. The figures presented in this Annex have only been used where other, more detailed, cost information is not available. As such the costs presented here differ from those in section H4 for frontages where more detailed costs are available.

### **Basis for cost assumptions:**

- Replacement costs taken from SMP Procedural Guidance (Defra, 2006). This sets replacement costs for linear structures (e.g. revetments, seawalls) at £2.7million/km and cost for beach management schemes at £5.1million/km. Groyne field costs and embankments are taken as £0.6million/km;
- Maintenance costs taken from NADNAC study prepared for Defra (2004). This sets annual maintenance cost for linear structures and for groyne fields at £10k/km and for beach schemes £20k/km;
- Assumed design life (and thus full scheme reconstruction will be required) as 100 years for linear wall/revetment defences, 50 years for beach schemes, 40 years for embankments and 30 years for groynes.
- Allow for maintenance as a linear cost, although realistically less in early years and increasing in latter years of scheme life;
- Allowance for increase in costs due to climate change: Period 20-50 years - costs factored up by 1.5 x present day rates; Period 50-100 years - costs factored up by 2.0x present day rates;
- Capital costs have had 20% added to them for preliminaries, and 9% for contractors fees;
- Optimism bias (at 60%) to be applied to all costs when examining BCR, to reflect uncertainty in broad level analysis at SMP scale;
- For "low cost" defence structures use same rate as groynes; and,
- Rates for typical defences types used:

Defence Type	Cost per km	
	Replacement	Maintenance
Beach recharge	£5,100,000	£20,000
Seawall	£2,700,000	£10,000
Rock revetment	£2,700,000	£10,000
Groyne	£600,000	£10,000
Embankment	£600,000	£10,000
Steel sheet piling	£2,081,000	£10,000
Flood wall	£1,186,000	£10,000
Cliff Stabilisation*	£200,000	£20,000

\*Note: Cliff stabilisation costs are highly site dependent.

## H.2.1 Defence Costs for Preferred policies

For brevity, the following table presents the cost estimates only for those policy units where the preferred policies involve intervention during the 100 year time-frame of the SMP (i.e. managed realignment or hold the line are proposed), as those areas where no active intervention is proposed would not incur any cost of intervention.

It should be noted that for units 7d39, 7d40, 7d41 and 7d42, cost estimates have been taken directly from the recently completed Parrett Estuary Flood Risk Management Strategy, which appraised the whole life costs in detail.

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
7c01	0-20	HTL	1.71	0.27	1.98	1.91				
	20-50	HTL	0.00	0.61	0.61	0.20	1.71	2.23	2.25	3.60
	50-100	HTL	0.00	1.35	1.35	0.14				
7c04	0-20	HTL	1.32	0.04	1.37	0.72				
	20-50	HTL	0.00	0.11	0.11	0.04	1.32	0.40	0.78	1.25
	50-100	HTL	0.00	0.25	0.25	0.03				
7c06	0-20	HTL	3.00	0.17	3.17	2.65				
	20-50	HTL	0.00	0.38	0.38	0.12	3.00	1.40	2.87	4.59
	50-100	HTL	0.00	0.85	0.85	0.09				
7c07	0-20	MR	0.71	0.98	1.69	1.43				
	20-50	MR	1.06	2.21	3.26	1.01	3.18	8.09	3.08	4.92
	50-100	MR	1.41	4.90	6.31	0.64				
7c08	0-20	HTL	0.00	0.32	0.32	0.23				
	20-50	HTL	8.37	0.71	9.08	3.90	8.37	2.61	4.30	6.88
	50-100	HTL	0.00	1.58	1.58	0.17				
7c09	0-20	HTL	0.00	0.36	0.36	0.26	9.43	2.94	4.84	7.75

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	20-50	HTL	9.43	0.80	10.23	4.39				
	50-100	HTL	0.00	1.78	1.78	0.19				
7c11	0-20	HTL	0.00	0.70	0.70	0.51				
	20-50	HTL	0.00	1.58	1.58	0.51	10.86	5.78	3.30	5.29
	50-100	HTL	10.86	3.50	14.36	2.28				
7c12	0-20	HTL/MR/NAI	0.00	0.15	0.15	0.11				
	20-50	HTL/MR/NAI	0.88	0.34	1.22	0.35	2.06	1.24	0.64	1.03
	50-100	HTL/MR/NAI	1.18	0.75	1.93	0.18				
7c13	0-20	HTL	4.65	0.60	5.25	3.32				
	20-50	HTL	0.00	1.35	1.35	0.44	4.65	4.95	4.08	6.52
	50-100	HTL	0.00	3.00	3.00	0.32				
7c14	0-20	HTL	3.26	0.42	3.68	2.32				
	20-50	HTL	0.00	0.94	0.94	0.31	3.26	3.47	2.85	4.56
	50-100	HTL	0.00	2.10	2.10	0.22				
7c15	0-20	HTL	2.60	0.17	2.77	1.73				
	20-50	HTL	0.00	0.39	0.39	0.13	2.60	1.42	1.95	3.12
	50-100	HTL	0.00	0.86	0.86	0.09				
7c16	0-20	MR	0.00	0.18	0.18	0.13	0.00	1.49	0.36	0.58
	20-50	MR	0.00	0.41	0.41	0.13				

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	50-100	MR	0.00	0.90	0.90	0.10				
7c17	0-20	HTL	3.86	0.38	4.24	2.28				
	20-50	MR	0.00	1.48	1.48	0.48	9.01	5.13	3.89	6.23
	50-100	HTL	5.15	3.28	8.43	1.13				
7c18	0-20	HTL	2.00	0.34	2.34	1.29				
	20-50	MR	0.00	0.77	0.77	0.25	4.67	2.81	2.12	3.40
	50-100	HTL	2.67	1.70	4.37	0.58				
7c19	0-20	HTL	0.78	0.10	0.88	0.48				
	20-50	HTL	0.00	0.23	0.23	0.09	0.78	0.83	0.62	0.99
	50-100	HTL	0.00	0.50	0.50	0.05				
7c21	0-20	HTL	3.06	0.52	3.58	1.97				
	20-50	MR	0.00	1.17	1.17	0.38	7.14	4.29	3.25	5.20
	50-100	HTL	4.08	2.60	6.68	0.89				
7c22	0-20	HTL	4.24	0.72	4.96	2.73				
	20-50	HTL	0.00	1.62	1.62	0.53	9.89	5.94	4.50	7.20
	50-100	HTL	5.65	3.60	9.25	1.24				
7c23	0-20	HTL/MR/ NAI	0.00	0.60	0.60	0.44				
	20-50	HTL/MR/ NAI	3.53	1.35	4.88	1.40	3.53	4.95	2.17	3.46
	50-100	HTL/MR/ NAI	0.00	3.00	3.00	0.32				

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
7c24	0-20	HTL	0.00	1.15	1.15	0.84				
	20-50	HTL	7.69	2.58	10.26	4.21	15.38	9.45	6.66	10.66
	50-100	HTL	7.69	5.73	13.42	1.61				
7c25	0-20	HTL	6.44	1.09	7.53	4.15				
	20-50	MR	0.00	2.25	2.25	0.73	15.02	8.34	6.72	10.74
	50-100	HTL	8.59	5.00	13.59	1.83				
7c26	0-20	HTL	1.67	0.28	1.96	1.08				
	20-50	MR	0.00	0.64	0.64	0.21	3.90	2.34	1.77	2.84
	50-100	HTL	2.23	1.42	3.65	0.49				
7c27	0-20	HTL	2.00	0.80	2.80	1.63				
	20-50	MR	0.00	0.77	0.77	0.25	4.67	3.27	2.46	3.94
	50-100	HTL	2.67	1.70	4.37	0.58				
7c28	0-20	HTL	0.59	0.15	0.74	0.42				
	20-50	MR	0.00	0.23	0.23	0.07	1.37	0.88	0.66	1.06
	50-100	HTL	0.78	0.50	1.28	0.17				
7c29	0-20	MR	0.00	0.05	0.05	0.04				
	20-50	MR	0.00	0.09	0.09	0.03	0.78	0.60	0.18	0.29
	50-100	MR	0.78	0.46	1.24	0.12				
7d02	0-20	HTL	0.64	0.04	0.67	0.42	0.64	0.30	0.46	0.74
	20-50	HTL	0.00	0.08	0.08	0.03				

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	50-100	HTL	0.00	0.18	0.18	0.02				
7d04	0-20	HTL	7.15	0.27	7.42	3.92				
	20-50	HTL	0.00	0.61	0.61	0.20	7.15	2.23	4.26	6.82
	50-100	HTL	0.00	1.35	1.35	0.14				
7d06	0-20	HTL	0.00	0.03	0.03	0.02				
	20-50	HTL	0.66	0.06	0.72	0.26	0.66	0.21	0.29	0.47
	50-100	HTL	0.00	0.13	0.13	0.01				
7d10	0-20	HTL	0.00	0.04	0.04	0.03				
	20-50	HTL	1.09	0.09	1.18	0.43	1.09	0.34	0.48	0.77
	50-100	HTL	0.00	0.21	0.21	0.02				
7d12	0-20	HTL	5.85	0.22	6.07	3.21				
	20-50	HTL	0.00	0.50	0.50	0.16	5.85	1.82	3.49	5.58
	50-100	HTL	0.00	1.11	1.11	0.12				
7d19	0-20	HTL	0.00	1.44	1.44	1.06				
	20-50	HTL	15.64	3.25	18.89	6.83	56.52	11.91	12.32	19.71
	50-100	HTL	40.88	7.22	48.10	4.43				
7d20	0-20	HTL	1.37	0.36	1.73	1.64				
	20-50	HTL	2.06	0.79	2.85	0.82	6.18	2.89	2.88	4.60
	50-100	MR	2.75	1.75	4.50	0.42				
7d21	0-20	HTL	1.18	0.30	1.48	1.40	5.30	2.48	2.46	3.94

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	20-50	HTL	1.77	0.68	2.44	0.70				
	50-100	MR	2.35	1.50	3.85	0.36				
7d22	0-20	MR	1.49	0.38	1.87	1.77				
	20-50	HTL	2.24	0.85	3.09	0.89	6.71	3.14	3.12	4.99
	50-100	HTL	2.98	1.90	4.88	0.46				
7d23	0-20	HTL	0.92	0.68	1.60	1.42				
	20-50	HTL	0.00	1.54	1.54	0.50	0.92	4.96	2.25	3.60
	50-100	NAI	0.00	2.74	2.74	0.32				
7d25	0-20	HTL	7.64	0.44	8.08	5.05				
	20-50	HTL	0.00	0.99	0.99	0.32	7.64	3.64	5.60	8.97
	50-100	HTL	0.00	2.21	2.21	0.23				
7d29	0-20	HTL	0.00	0.03	0.03	0.02				
	20-50	NAI	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.04
	50-100	NAI	0.00	0.00	0.00	0.00				
7d31	0-20	HTL/NAI	10.63	0.52	11.15	8.93				
	20-50	HTL/NAI	0.00	1.17	1.17	0.38	10.63	4.29	9.59	15.34
	50-100	HTL/NAI	0.00	2.60	2.60	0.28				
7d32	0-20	HTL	1.82	0.25	2.07	1.13				
	20-50	MR	0.00	0.56	0.56	0.18	4.26	2.06	1.82	2.91
	50-100	HTL	2.43	1.25	3.68	0.50				

Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
7d33	0-20	HTL	0.58	0.10	0.67	0.37				
	20-50	MR	0.00	0.22	0.22	0.07	1.35	0.81	0.61	0.98
	50-100	HTL	0.77	0.49	1.26	0.17				
7d34	0-20	HTL/MR	3.53	0.90	4.43	3.74				
	20-50	HTL/NAI	0.00	2.03	2.03	0.66	3.53	7.43	4.88	7.81
	50-100	HTL/NAI	0.00	4.50	4.50	0.48				
7d35	0-20	MR	0.00	0.14	0.14	0.10				
	20-50	NAI	0.00	0.00	0.00	0.00	0.00	0.14	0.10	0.16
	50-100	NAI	0.00	0.00	0.00	0.00				
7d36	0-20	HTL	0.00	0.10	0.10	0.07				
	20-50	NAI	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.12
	50-100	NAI	0.00	0.00	0.00	0.00				
7d37	0-20	HTL	0.00	1.00	1.00	0.73				
	20-50	HTL	0.00	0.00	0.00	0.00	0.00	1.00	0.73	1.17
	50-100	HTL	0.00	0.00	0.00	0.00				
7d38	0-20	HTL	0.83	0.16	1.00	0.73				
	20-50	HTL	0.65	0.36	1.01	0.25	2.35	1.34	1.13	1.80
	50-100	HTL	0.86	0.81	1.67	0.14				
7d39*	0-20	HTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.15
	20-50	HTL	0.00	0.00	0.00	0.00				



Hartland Point to Anchor Head SMP2  
Appendix H – Economic Appraisal and Sensitivity Testing

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	50-100	MR	0.00	0.00	0.00	0.00				
7d40*	0-20	HTL	0.00	0.00	0.00	0.00				
	20-50	HTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28
	50-100	HTL	0.00	0.00	0.00	0.00				
7d41*	0-20	HTL	0.00	0.00	0.00	0.00				
	20-50	HTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.9
	50-100	HTL	0.00	0.00	0.00	0.00				
7d42*	0-20	HTL	0.00	0.00	0.00	0.00				
	20-50	HTL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.6
	50-100	MR	0.00	0.00	0.00	0.00				
7d43	0-20	HTL	11.42	1.39	12.81	6.96				
	20-50	HTL	0.00	3.13	3.13	1.02	11.42	11.48	8.72	13.95
	50-100	HTL	0.00	6.96	6.96	0.74				
7d44	0-20	HTL	0.00	1.48	1.48	1.09				
	20-50	MR	5.49	3.40	8.89	2.22	5.49	15.78	4.46	7.14
	50-100	MR	0.00	10.90	10.90	1.16				
7d45	0-20	HTL	0.00	0.47	0.47	0.34				
	20-50	HTL	0.00	1.05	1.05	0.34	0.00	3.84	0.93	1.49
	50-100	MR	0.00	2.33	2.33	0.25				
7e02	0-20	HTL	0.00	0.68	0.68	0.50	0.00	5.61	1.36	2.18

Policy Unit #	Epoch	Policy	Capital CV (£m) <i>includes 20% for preliminaries and 9% for contractor fees</i>	Maintenance CV (£m)	Total CV (£m)	Total PV (£m)	Whole Life Capital CV (£m)	Whole Life Maintenance CV (£m)	Total Whole Life PV (£m)	Total Whole Life Cost PV+60% Optimism Bias (£m)
	20-50	HTL	0.00	1.53	1.53	0.50				
	50-100	MR	0.00	3.40	3.40	0.36				
<b>7e03</b>	0-20	HTL	0.00	0.78	0.78	0.57				
	20-50	MR	5.42	2.03	7.44	3.03	12.64	7.41	5.03	8.05
	50-100	HTL	7.22	4.60	11.82	1.43				
<b>7e04</b>	0-20	HTL	2.25	0.09	2.34	1.23				
	20-50	MR	0.00	0.38	0.38	0.12	2.25	1.32	1.45	2.32
	50-100	HTL	0.00	0.85	0.85	0.09				
<b>7e05</b>	0-20	MR	0.00	0.36	0.36	0.26				
	20-50	MR	0.00	0.81	0.81	0.26	0.00	2.97	0.72	1.15
	50-100	MR	0.00	1.80	1.80	0.19				
<b>7e06</b>	0-20	HTL	0.00	1.80	1.80	1.32				
	20-50	HTL	0.00	4.05	4.05	1.32	0.00	14.85	3.60	5.76
	50-100	HTL	0.00	9.00	9.00	0.96				

\*These values are whole-life Present Value (PV) figures based upon the detailed economic appraisal undertaken as part of the recently completed Parrett Estuary Flood Risk Management Strategy Study (Environment Agency, 2009).

## Annex H.3 – Supporting information for Sensitivity Testing

Proposed climate change scenarios (Defra, 2006)<sup>6</sup>:

Area	Assumed Vertical Land Movement (mm/yr)	Net Sea level Rise (mm/yr)			
		1990-2025	2025-2055	2055-2085	2085-2115
South West and Wales	-0.5	3.5	8.0	11.5	14.5
Indicative Sensitivity Range - Peak river flow volume (within estuaries)		+10%	+20%		
Indicative Sensitivity Range – Extreme Wave Height / Offshore wave height		+5%		+10%	

Consequences for the North Devon and Somerset coast (in mOD) with regards to Defra (2006) climate change predictions, based upon Admiralty Tide Tables 2009 as the present day levels:

Location	MHWS (mOD)				MSL (mOD)			
	Present	to 2025	to 2055	to 2105	Present	to 2025	to 2055	to 2105
Lundy	3.70	3.75	3.99	4.70	0.15	0.20	0.44	1.15
Clovelly	3.90	3.95	4.19	4.90	-	-	-	-
Bideford	4.52	4.57	4.81	5.52	-	-	-	-
Barnstaple	4.70	4.75	4.99	5.70	-	-	-	-
Fremington	4.47	4.52	4.76	5.47	-	-	-	-
Yelland Marsh	4.34	4.39	4.63	5.34	0.26	0.31	0.55	1.26
Appledore	4.32	4.37	4.61	5.32	0.50	0.55	0.79	1.50
Ilfracombe	4.50	4.55	4.79	5.50	0.24	0.29	0.53	1.24
Lynmouth	4.60	4.65	4.89	5.60	-	-	-	-
Porlock Bay	5.00	5.05	5.29	6.00	0.42	0.47	0.71	1.42
Minehead	5.20	5.25	5.49	6.20	0.31	0.36	0.60	1.31
Watchet	5.50	5.55	5.79	6.50	0.07	0.12	0.36	1.07
Hinkley Point	6.30	6.35	6.59	7.30	0.80	0.85	1.09	1.80
Bridgwater	6.10	6.15	6.39	7.10	-	-	-	-
Burnham on Sea	5.77	5.82	6.06	6.77	-	-	-	-
Weston-super-Mare	6.00	6.05	6.29	7.00	0.10	0.15	0.39	1.10

<sup>6</sup> Defra (2006) Flood and Coastal Defence Appraisal Guidance, FCDPAG3 Economic Appraisal, Supplementary Note to Operating Authorities – Climate Change Impacts, October 2006.